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BEAUTIFYING COUNTRY HOMES.

A HANDBOOK

OF

Landscape Gardening.

Illustrated by Plans of Places already Improved.

BY

J. WEIDENMANN,

SUPERINTENDENT OF THE CITY PARK, AND OF CEDAR HILL CEMETERY, OF HARTFORD, CONN.

NEW-YORK:

ORANGE JUDD AND COMPANY,

245 BROADWAY.

Lovejoy, Son & Co.,
Electrotypers & Stereotypers,
15 Vandewater Street, N. Y.

TO

JAMES L. HOWARD, ESQ.,

CHAIRMAN OF PARK COMMISSIONERS OF THE CITY OF HARTFORD,

A LOVER OF RURAL LANDSCAPE GARDENING,

THIS HANDBOOK,

BY PERMISSION,

IS RESPECTFULLY AND AFFECTIONATELY DEDICATED

BY

THE AUTHOR.

PREFACE.

Within the last ten years, the popular taste has wonderfully advanced, and the want of a brief work of instruction in Landscape Architecture has been greatly felt.

In the present work we shall endeavor to state, briefly and practically, the methods by which every land owner may improve and beautify his suburban home effectively, and with economy—keeping in view the maxim that "Whatever is worth doing, is worth doing well."

As it is necessary to be brief, we shall not give the arguments in favor of the methods recommended here, but confine ourselves to such instructions as our own personal practice, as well as the experience of the most eminent landscape architects in both this country and Europe, have taught us to be the best. Neither shall we give rules that are applicable to only one particular style of grounds and residences, but shall endeavor to lay down such general rules and principles as may be applicable to any situation.

It is all important for one who intends to make improvements, first to decide upon a plan, so that he may know all that needs to be done before any work is begun. When he has decided what to do, it is equally important to commence at the beginning, or, in other words, at the very foundation of the whole. If the location of the house has not been decided upon, this should be done first; then proceed with the drainage; next the construction of roads; which is to be followed by grading. When the draining, and the grading of roads and walks are completed, he is ready to plant, dress, and seed down the lawns.

It must be marked that land can only be worked to advantage at certain seasons, and the same is the case with the planting of trees and shrubs.

Spring, summer, and fall, afford the best opportunities, and the work may begin soon enough to allow the planting to be done in the fall, unless the owner desires to raise a crop upon the land proposed to be improved, in which case the work must begin after harvest, and the planting be done the following spring.

In the following pages, each head will be treated separately and distinctly in its order, so as to enable one who has his house built, or the draining completed, to proceed with the other improvements under their respective headings.

To one about to embellish his grounds, the first and essential inquiry will be—"What will it cost to improve my grounds, and what will be the yearly expense of keeping them in good order?" We would advise each one to first determine how much he can afford each year for the keeping of his ground, and examine our estimates for the annual care of ornamental grounds. We have aimed to give approximate estimates of the cost of laying out grounds, as well as for their keeping and care, in proportion to their first cost.

In treating with compactness and brevity such an extended and varing subject, the work must be, necessarily, imperfect; yet we trust that its hints will be appreciated, and that its introduction may do much towards beautifying our suburban homes, farms, and villas.

All cannot enjoy the privilege of a stroll in the King of Parks—the Central Park of New York. Comparatively few can view its extended lawns, or its bold cliffs and caves, admire its triumphs of architectural taste, or note how the skillful artist has converted a vast plain into hills and dales, and varied it with lakes and cascades, shady founts, and open lawns. But all can make their country homes attractive and lovely, and enjoy the beauties of nature about their own house and fireside.

CONTENTS.

PART I.

LANDSCAPE ARCHITECTURE.

GENERAL SUGGESTIONS.

The location of the house on lots of from half an acre to two acres in extent should be sufficiently back from the public road to afford ample room for an unbroken ornamental lawn, of a depth proportionate to its width. On small lots the

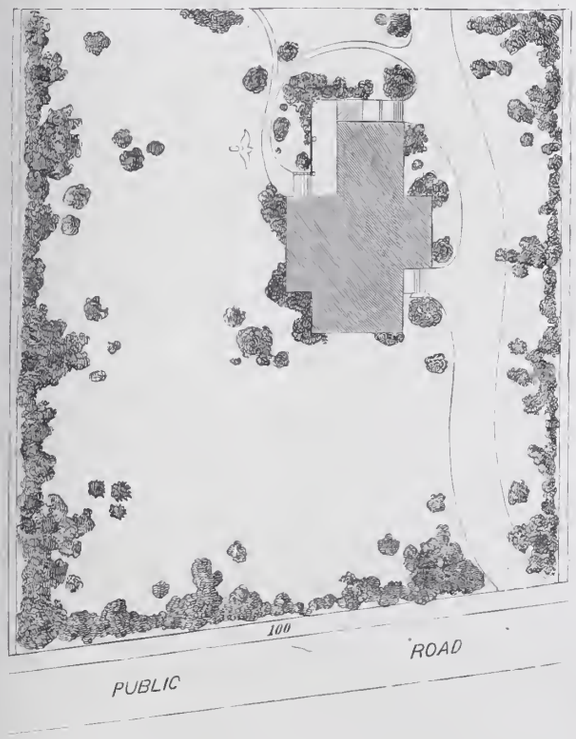


Fig. 1.—LOCATION OF THE HOUSE FOR A SMALL LOT.

house should not stand midway between the sides of the lot, but, if practicable, a larger space should be left on one side, as shown in figure 1.

The position of the house should be such that the larger portion of the grounds may be enjoyed from the principal rooms. If one or two entrances through the pleasure-ground are desired, neither should be so situated as to cut up or lessen the extent of the main lawn; therefore they should be towards the sides. Straight roads and straight walks, as well as sharp angles, as a rule, ought to be avoided. The course of the walks should be gentle and graceful, and composed of easy curves, which should not follow a serpentine line. Figure 2 gives a design for laying out a one-and-a-half-acre lot. The roads should lead first to the front entrance, pass around the

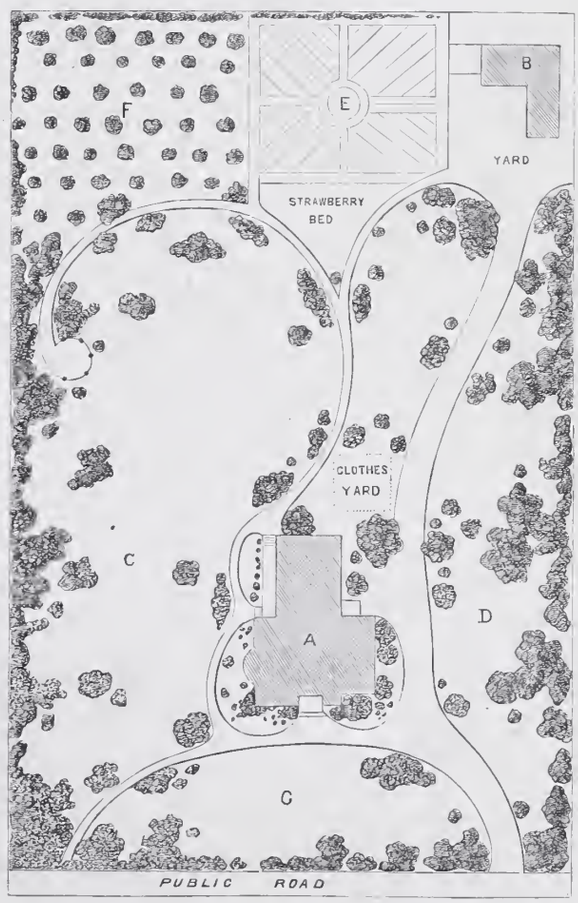


Fig. 2.—PLAN FOR A LOT OF AN ACRE AND A HALF.
A, House; B, Barn; CC, Principal Lawn; D, Side Lawn; E, Vegetable Garden; F, Orchard.

house to the rear doors, and from thence to the barn or other outhouses. On grounds that are sufficiently large, the road may encircle the house and rejoin itself, leaving room between it and the house for neat grass plots or lawns.

LAWNS.

Lawns are of chief importance, and form the basis of the whole ornamental pleasure-ground. All grounds require a main or principal lawn, situated in the most prominent space within sight of the house. The center of the lawn ought not to be hollow or even flat, but should have a gradual swelling, which may be greater or less, according to its extent. Figure 3 gives a section of a main lawn, showing the proper grade.

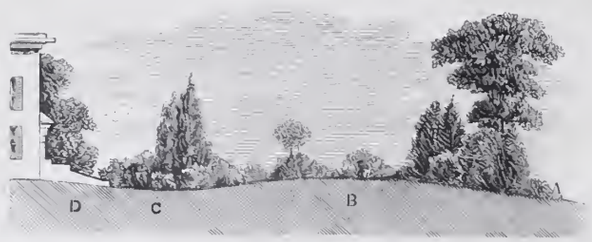


Fig. 3.—SECTION OF MAIN LAWN.
A, Public Road; B, Sectional Line of Grade; C, Walk; D, Grade of Grass-plot sloping from the House.

The surface of extensive lawns may be made to vary to great advantage, while depressed or flat surfaces should never be encouraged.

A lawn near a residence should be judiciously and sparingly planted, leaving extensive views of its surface unobstructed. Side lawns are such as are between the walks and roads and the neighboring lots; on these trees may be planted more thickly, in places where shade and shelter are needed, as well as where uninteresting objects require to be kept from sight. By agreement between two neighbors these side lawns may be enlarged, and the two united into a harmonious whole; such an arrangement, however, requires much skill in the grouping of trees, so that the two may be blended and yet keep each residence distinct. (See Chapter on Planting.)

The play or croquet-ground is best situated upon a level and shaded spot convenient to the house, and may form both by its position and character a separation or union lawn (as we may choose to consider it) between the ornamental grounds in front and the gardens in the rear.

Provision ought to be made for the clothes-yard behind and near the house, and it may be treated as a lawn, as also may the lawn-like grass plots about the house; they admit of only shrubs or dwarf trees.

SEEDING DOWN LAWNS AND LAWN PASTURES.

In order to seed down lawns properly, the land should be thoroughly manured, plowed, and cultivated, all stones, roots, and stumps, removed, and a coat of good, rich loam be spread over its surface.

The importance of a good selection and proper mixture of grasses for lawns and lawn pastures cannot be overestimated, and it appears very singular that farmers and landowners in this country pay so little attention to the most important matter of selecting such a mixture of grass seeds as will suit soil, location, and the purpose for which the grass is intended. The mixture for lawn grass seeds generally adopted in this country is one bushel of Red-top and one quart of White Clover, but experience has shown that if one kind of grass only be sown, no matter how abundantly the seed may be scattered, or on whatever soil it may be, or under however favorable influences, only a part of the plants will flourish, vacant places will occur throughout the piece, and these will be filled up after a time by grasses of an inferior quality, as well as weeds or mosses.

We enumerate some of the grasses that have been found most useful for lawns.

Red-top. — *Agrostis vulgaris.* — This is an European grass, which in different parts of the country is known as Fine-top, Burden's Grass, and in Pennsylvania and the Southern States is called Herd's-grass. In New England and New York the name Herd's-grass is applied to Timothy, *Phleum pratense*, a grass which from its manner of growth is quite unsuited for lawns. The Red-top has very fine leaves, and produces its flowers in July in a loose, open panicle. It endures our climate well, and if kept close, makes a fine sward. It varies much in appearance with the character of the soil upon which it is grown.

Creeping Bent.—*Agrostis alba*, var. *stolonifera.*—This is also called Fiorin, and is believed to be only a variety of the English Bent or White-top. It flourishes best in moist land, and its long, creeping root-stocks, which make it a troublesome grass to eradicate, adapt it for use in forming a sward.

June Grass.— *Poa pratensis.*— Also called Kentucky Blue Grass, Green Meadow Grass, Common Spear Grass, etc.

Fig. 4.—PLEASURE GROUNDS OF H. E. SARGEANT, ESQ., SOUTHAMPTON, MASS.

The plant is of a light green color, and in June throws up a flowering stem of a height varying with the character of the soil, and bearing an open panicle of longer spikelets than the Red-top. It has long, creeping root-stocks, and makes a dense turf. It is rather slow in becoming well set, but when once established it makes an excellent lawn, enduring our extremes of heat and cold and making a very uniform growth.

Sweet-scented Vernal Grass. — *Anthoxanthum odoratum.*—While this grass is not valuable for forming a sward, it enters into the mixtures on account of the delightful odor it develops when slightly wilted. The peculiar fragrance of newly mown hay is due to the presence of this grass. It flowers in May and June, and bears a spike much looser and larger flowered than that of Timothy.

White Clover.—*Trifolium repens.*—This, though not a grass proper, is very commonly used in the formation of lawns. It spreads rapidly, especially in a moist soil or a wet season.

The following tables, as adapted to the climate of Great Britain, are recommended by Lawson & Son, of Edinburgh. As they have not been tried sufficiently in this country, they may need some modification:

PERMANENT LAWN GRASSES IN MIXTURE.

Meadow Foxtail	1	pound.
Sweet-scented Vernal Grass	1	"
Red-top	2	"
Hard Fescue	3	"
Sheep's Fescue	1	"
Meadow Fescue	4	"
Red Fescue	2	"
Italian Rye Grass	6	"
Perennial Rye Grass	8	"
Timothy	1	"
June or Common Spear Grass	2	"
Rough-stalked Meadow Grass	2	"
Yellow Oat Grass	1	"
Perennial Clover	2	"
Red Clover	2	"
White Clover	6	"
	44	pounds.

If a fine lawn is wanted, where extra attention will be paid to rolling and mowing, the following mixture will do well:

FINE LAWNS FREQUENTLY MOWN.

Crested Dog's-tail	10	pounds.
Hard Fescue	4	"
Slender Leaf Sheep's Fescue	2	"
Perennial Rye Grass	10	"
Wood Meadow Grass	2	"
Rough-stalked Meadow Grass	1	"
Yellow Oat Grass	1	"
June Grass	8	"
White Clover	8	"
Total	46	pounds.

PERMANENT LAWN PASTURES.

Meadow Fox-tail	1	pound.
Sweet-scented Vernal Grass	1	"
Orchard Grass	3	"
Hard Fescue	2	"
Sheep's Fescue	2	"
Meadow Fescue	2	"
Italian Rye Grass	6	"
Perennial Rye Grass	4	"
Timothy	7	"
Red-top	3	"
Rough-stalked Meadow Grass	3	"
Yellow Oat Grass	1	"
Red Clover	2	"
Perennial Red Clover	2	"
White Clover	4	"
Total	43	pounds.

The proper time to sow grass seed is in the fall, early in September, though there are, and always will be, some cases where the practice of sowing in the spring is convenient and judicious. The seeding in spring needs a mixture of grain to protect the young grass from the hot sun; but it is essential that when the grain needs cutting in June or July, it should be at least four inches above the ground, so as not to hurt the grass, and still leave some shade and protection.

TOP-DRESSING LAWNS.

If the soil for the lawn has been well prepared, the grass mowed frequently, and the clippings left to decay upon the lawn, it should maintain its fertility for a long time. But if after each mowing a crop is removed, the loss must be supplied by fertilizers. For general purposes there is no better top-dressing than well-composted stable manure, which should be thoroughly decomposed and applied in the fall. Peat or muck, which has been composted with lime or ashes, is a valuable application. Ashes, whether leached or unleached, are applied with great benefit. Plaster is often highly beneficial to grass, and again it is used without any apparent effect. It is more useful in inland localities than in those near the sea-coast. There is perhaps no top-dressing that can be applied with a greater certainty of beneficial results than ground bones, which may be used either alone or in combination with ashes. Peruvian guano, mixed with loam to insure its more even distribution, is often applied in the spring, just before a rain or during a damp time; it gives the grass a fine start, but its effects are not so lasting as those of bones.

DRAINAGE.

Drainage is one of the important works to be attended to. We say nothing as regards the great good derived from it otherwise than as relates to Landscape Architecture. All wet lands are not only unhealthy, but unsuited to the development of both grass and trees. Therefore it is necessary to drain wherever the character of the soil requires it.

We do not purpose to put down a plan for thorough first-class draining, as to do so would require more space than we intend to give to this entire book. Therefore we give only such general hints as any improver may follow practically. Should such not be deemed adequate, we recommend the book on "Draining for Profit," by Col. Geo. E. Waring, Jr., —not a large but a very complete work.

We adopt only *one* method, which we consider as superior, permanent, and most economical, leaving the antique board,

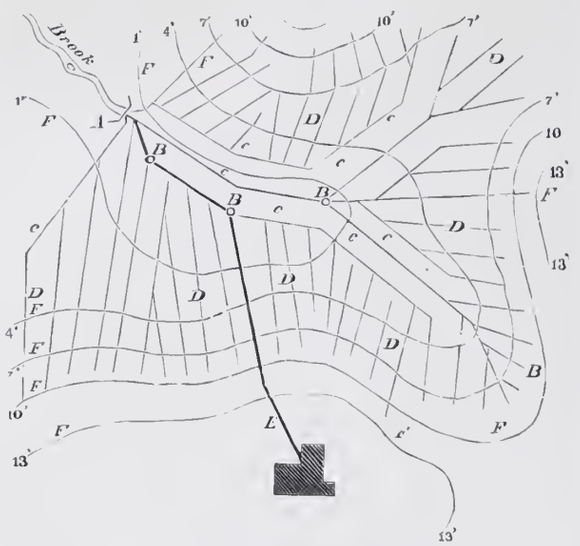


Fig. 5.—MAP OF COMPLETE DRAINAGE.
A, Outlet; B, Silt Basins; C, Main Drains; D, Lateral Drains; E, Sewer from the House; F, Contour Lines.

brush, stone, horse-shoe, and even sole tile drains as things worthy of the past but not of to-day. Land is generally improved by being drained, though it is not always within the means of a proprietor to thoroughly drain his ground; at all events wet spots on high or low ground ought to be drained. Such places are often discovered in making post-holes, or road-beds, or in planting trees. The slightest running of water in such places is a sure sign that the soil needs draining; there are also the usual evident surface signs. When these points are marked, commence where the outlets are to be and place a stake there; from thence form straight lines through the lowest ground, putting stakes at about every fifty feet, and also one where this line makes an angle. This gives the direction of the main drain, of which there may be several if the low ground be very irregular. From the main

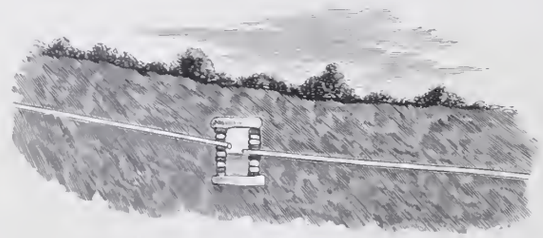


Fig. 6.—PROFILE OF A DECREASING DRAIN.

the lateral drains will branch as parallel as possible to one another, forty feet apart if four feet deep, and twenty feet apart if three feet deep, running up the slope as far as the case demands. It must be borne in mind that drains should maintain throughout their length a uniform fall, which should never be less than six inches to every hundred feet in length, unless the work is executed by a skillful engineer, and that at whatever point the fall decreases there should be a silt basin connected with the pipes, as shown in figure 6.

There are different sizes of silt basins,—some to secure the deposits of main drains, others for lateral drains and springs. The first of these is a small well, either round and two feet in diameter, or two feet square; these are dug out three to four feet deeper than the drain, and sufficiently large to allow them to be easily cleaned out. They are built of stones or brick, and laid in cement.

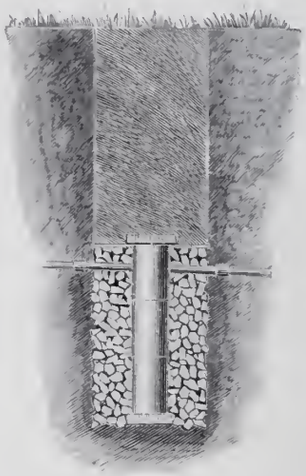


Fig. 7.—STONE AND TILE BASIN FOR SPRING WITH DRAIN.

The inlet pipe connects with the basin about two inches higher than the outlet pipe. Smaller silt basins, used with the laterals, consist of a ten-inch terra cotta, or vitrified pipe, standing upright upon a flat stone, reaching up to the surface. If the ground be such that sand or soil will wash easily through the pipes, which therefore require cleaning every year, the basin should reach up to the surface. In clayey ground, it needs to extend only a few inches above the inlet pipe. The next is a basin to absorb the water of springs. A pit is dug three or four feet deeper than the drain, and two feet square; in its bottom is

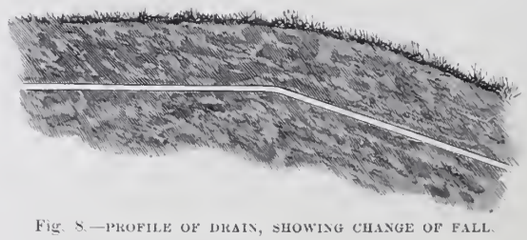


Fig. 8.—PROFILE OF DRAIN, SHOWING CHANGE OF FALL.

placed one or more stones, flat surface upward, on which are put upright pipes of the same size, and set in the same manner as described above, except that here the outlet pipe will run directly to the main drain; around this upright pipe are placed small stones, to fill up firmly the remaining space. In all basins the connections with the drains ought to be made to fit neatly, always taking care that the inlet is a little higher than the outlet pipe. The large basins are built to the surface, and closely covered with a flat stone. The smaller silt basins generally wash out after a storm. Whether they reach to the surface, or only a little above the inlet pipe, they should be securely covered. Sharp bends or curves of any kind must be avoided in drains, while the fall should be regular; and when the position of the land is so varying as to allow it, the change of fall must be at one point, as in fig. 8, and not gradual.

Large rocks collect so much water, that without draining, the land in front of their slope remains soaked for a long time; to avoid this, dig a trench parallel to the base of the rock, say two feet deeper than the drain, up to which fill in with small stones; then make on top of these a level bed, either of board or shavings, on which lay a one-and-a-quarter-inch round tile, with collars, and connect with the drain. This kind of work is also very serviceable where the land is very springy. To dig drains, a one-horse subsoil plow will be very useful for the first two and a half feet depth; then the remaining foot and a half can be taken out with the shovel, spade, and finishing-scoop. Sometimes, while digging through loose earth or sand, there is trouble from the breaking down of the sides of the ditch; in such cases, we think it best, instead of making the ditch two feet wide, to cut out as much as the falling in requires. Boards and braces may be used, but the above is the shortest plan, as boards are not always handy, to say nothing of the time and labor wasted in procuring, placing, and removing them.

For the main drains, round tiles, from two and a quarter to three and a half inches in diameter, may be used, without collars, if closely set, and the joints covered with a little clay or stiff loam. For lateral drains, one-and-a-quarter-inch round tiles, with two-and-a-quarter-inch collars, are used. We cannot recommend with too great emphasis the importance of laying the tile firmly, well joined, and in line. Throw out any tile that is even only slightly bent or imperfect. Moist clay, not wet, when it can easily be obtained, is invaluable for packing around the tiles. The lateral drains should flow into the main from the top; to effect this, place the end of the lateral tile close up to the side of the main tile, so that its top will be in a line with the top of the main tile; then trace and cut out on the larger tile the form of the end of the lateral, which will bring the flow of water in the smaller tile higher than the flow in the larger one. Then the end of the smaller tile is cut so as to correspond to the curve inside of the larger tile, and leave an unobstructed passage in the main drain. Filling upon the pipes must be done carefully, so as not to damage or break the tiles, particularly if stones are among the earth. The filling should be well packed down, first with the feet, around and above the tile, and after a foot or more of earth has been placed over it, it may be rammed down with a maul. The outlet is best constructed of solid stone or brick-work, deep enough, and extending far enough back into the bank, to be secure from the action of frost.

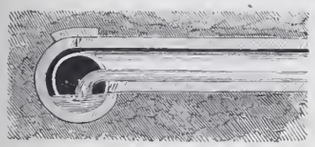


Fig. 9.—SECTIONAL VIEW OF JOINT.

Fig. 10.—LATERAL DRAIN ENTERING AT TOP.

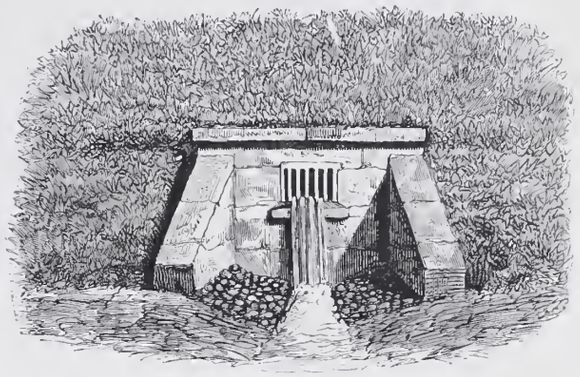


Fig. 11.—OUTLET SECURED BY MASONRY.

The opening for the escape of water must be protected by a light grating, to keep out vermin and prevent the stoppage of the drains. If provisions are made before covering the drains to take their locality and course by landmarks of trees, rocks, etc., in connection with a sketch and measures, much labor and trouble may be avoided should they ever need uncovering and repairs. In many instances the house drain may serve as a main drain, and then considerable outlay may be avoided. The smaller silt basins may, in many cases, be omitted, unless the laterals are very long. The larger silt basins are placed about every two hundred feet apart, and several main drains may empty into them. Outlets will, of course, empty in the lowest spots, and sometimes it may be necessary to lead them through the lot of a neighbor, who will seldom object to having his lot thus improved. Shavings, tan, brush, sods, etc., should not be used in connection with drains as coverings, except in such cases as have been cited; they may answer for a few years, but soon decay, and become a nuisance, their decayed particles getting into the tiles and clogging them.

Fig. 12.—TRINITY COLLEGE GATE, HARTFORD, CONN.

ROADS AND DRIVES.

Hints have already been given respecting roads and walks, in the "General Suggestions," but not sufficiently to impress upon the improver the great importance of their proper location and manner of construction. Their course

Fig. 13.—SECTION OF ROAD-BED.

gives grace and beauty, not only to the lawns, but to the whole place. Leading them straight to and in front of the house should be avoided, when it can possibly be done; neither should they, as a rule, be straight, nor, using the words of Downing, "be zigzag, like the contortion of a wounded snake." A multiplicity of either roads or walks is expensive in construction, as well as costly in after keeping, while they ruin and break up any ground where they are increased beyond absolute necessity. A mere rustic seat, summer-house, vase, or any other single object, without some additional attraction, is not sufficient to warrant the division and ruin of valuable lawns. It is not necessary to enumerate the many methods for road construction, but we will treat upon the Macadam and gravel systems, which are universally admitted to be the best. The latter, when built in the best manner with the best materials, is much cheaper, affords an easy drive, answers the purpose in parks or ornamental grounds better than the former, and its material can be obtained with

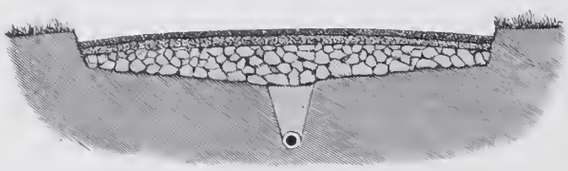


Fig. 14.—SECTIONAL VIEW OF ROAD-BED.

less trouble. Most of the carriage drives of the Central Park are gravel roads; experience there has given them the preference. Roads, to be durable and profitable, ought to be surface drained, to prevent washing, as well as the softening of the bed, and its consequent irregular hollows, and breaking. Now, supposing the road to be staked out, we proceed to form its bed or bottom. Remove the earth eleven to twelve inches in depth in its whole extent; then strike down in its entire center line from five to seven inches deeper. This new depth is gradually run out close up to the border on each side, giving a downward inclination of the bottom towards the center.

At this point of the work, we dig a ditch or trench about eighteen inches in depth, or low enough to be below the action of the frost, after the road is completed. The ditch must be sufficiently wide to admit the laying of a two-inch sole tile, or collar tile, and great care must be taken to fit the joints closely; if the former be used, cover the joints with shavings or tan, about half an inch thick, before replacing the earth. Blind stone sinks should be made of rubble stone, firmly set, from the tile up to the road-bed, so as to catch the water from the road-bed, and run it off through the tile; these sinks may be set about fifty feet apart. Tiles may also be set from the central drain, to connect with the surface drain in the gutters of the road. Before placing the foundation, the bed should be made smooth and compact, and the turf border laid on both sides accurately, as high as the stakes; then we are prepared to lay a foundation of rubble stone, fifteen inches high in the center, and up to within eight inches of the top of the border of the sides; if any of the stones are larger than nine inches in their longest side, they must be broken. The largest ones are set in the center. This foundation should be firmly put down, and gradually swell to the given height of the center of the road. Over this is spread, in layers, ordinary pit gravel, containing pebbles from one to two inches through,

Fig. 15.—SECTION OF ROAD WITH TURF GUTTERS.

the larger ones being raked down to the foundation. One-tenth part of the bulk of the gravel should be sand, to bind the pebbles; each layer is moistened, and thoroughly rolled. If no roller can be had, the road may be filled up with this gravel, which is to be moistened and pounded down with a maul to within two inches of the top of the border at the sides, gradually rising six inches from this point, in a rounding grade, to the center. Care must be taken, whether it be rolled or pounded, first to moisten the gravel, and then to do either of the processes thoroughly, and leave a smooth, well-rounded surface. This rule applies to roads from twelve to thirty feet wide; similar proportions are to be maintained for the crowning swell of the center, according to the width. The essential properties of gravel used for roads are, evenness of size, hardness, freedom from earth, loam, or clay, and it should not be water-worn. A dark color is preferable.

The Macadam road may be treated in the same way as

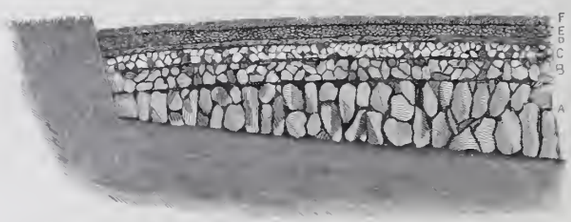


Fig. 16.—CONSTRUCTION OF ROAD IN HARTFORD CITY PARK.
A, Foundation; B First Layer of Broken Stones; C, Second Layer of Ditto; D, Shavings; E, Sea shore Pebbles; F, Sand

regards draining and preparing of the road-bed, laying the rubble stone foundation already described. On the foundation is spread a layer, three inches thick, of coarse, broken stones, about the size of one's fist, then a layer, three inches thick, of finer broken stones, about the size of nuts; this last layer is slightly covered with sand, but all layers are moistened, and smoothly rolled or pounded, as in the gravel road.

Temporary roads are made by digging out a road-bed, eight

to twelve inches deep, then filling with gravel, the largest stones being raked to the bottom. They are then rolled or pounded, the rising grade of roads towards their center being constantly observed. The writer constructed a road on the Park in Hartford, where the water had always badly washed, and had been very troublesome. Since a road was made, in 1862, in the manner described as follows, no repairs have been needed. Its drain, sinks, bed, and foundation, were essentially the same as above given; on the top of the foundation, a layer, three inches thick, of broken stones of large size was spread, covered with two inches of fine broken stones; each layer was thoroughly rolled; next to this came a layer of shavings, covered with one inch of sea-shore pebbles, and finished with a coat of sand, sufficient to pack the pebbles, each layer being rolled. Up to this time (1868) the road is as good as ever, and forms a dry, elastic, and firm drive-way.

We should not omit to remark that gravel, free from any binding material, is best for all layers, and that sand should not be spread on any except the last one, and not on that until it has been partly rolled. By rubble stones is meant stones varying from the size of apples to that of a man's head.

WALKS.

Where no road is desired, the walk takes its place, and receives its course or direction on the same principles already given for roads. If walks are desired in addition to roads, they will leave a border of turf between them and the drives; and if the ground or lawn is not limited, the curve of the walk may be somewhat changed from that of the drive.

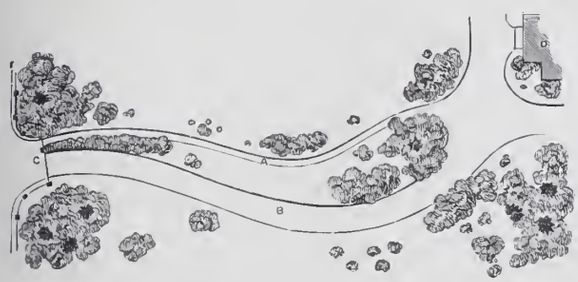


Fig 17.—A WALK IN ADDITION TO A DRIVE.
A. Walk; B. Drive; C. Gate; D. House.

In many instances, walk and drive are both combined. Useful walks are such as lead to out-buildings, cultivated grounds, etc. In their general character or construction, they do not differ from the pleasure walks, except that a course

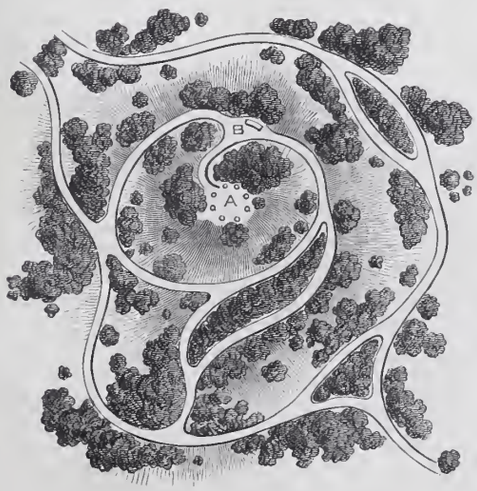


Fig. 18.—PLAN OF A RAMBLE ON E. S. ALBERT'S PLACE NEAR CHAMPNEY STATION, PA.
A. Rustic Pavilion; B, Stone Seat.

leading more directly to the object is necessary, while the pleasure walk deviates, making, as it were, circuitous routes before reaching it. When there are two or more objects to be visited, it is better to make only one walk leading to them, unless they are so scattered as to make this impossible. On large grounds, such a walk may return in another direction

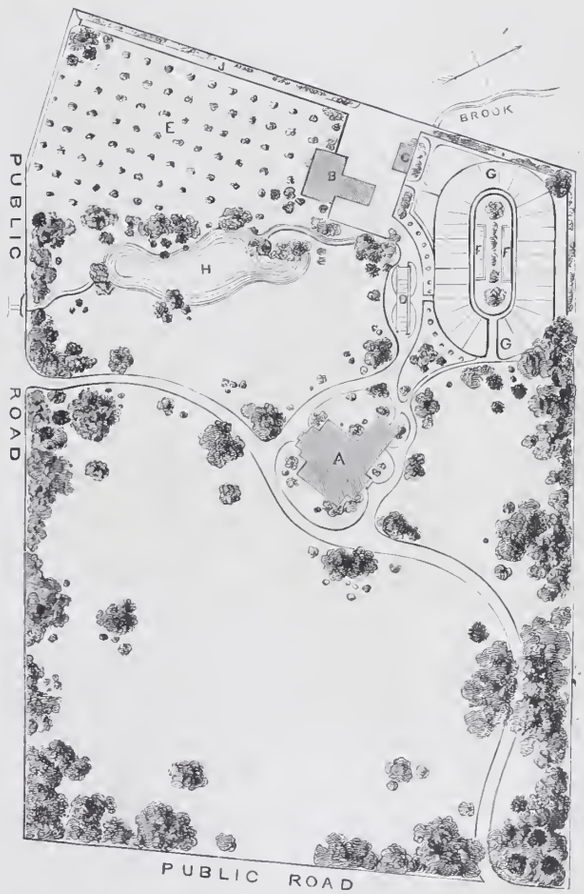


Fig. 19.—PLAN FOR LAYING OUT A SIX-ACRE LOT.
A, Mansion; B, Barn; C, Gardener's House; D, Green-house; E, Orchard; F, Hot-beds; G, Vegetable Garden; H, Lake; J, Barn Road.

perhaps bringing the visitor unexpectedly near the residence. This also sometimes affords fine opportunities for rambles, which consist of narrower walks, running around and over a hill, and again down to the dale, occasionally crossing one another, and sometimes leading the stranger to a stand-still, or sudden terminus.

Walks on private grounds vary in width from three to ten feet. Entrance walks should not be less than five feet

wide. In constructing a walk, commence to dig out eight inches in depth of soil from the walk, which is staked out somewhat deeper in the center; when the bed is smoothed, place on it the rubble stones for a foundation, six inches thick, the center being made to rise or swell; then roll it down firm, and place a layer of either shavings, tan, or coal cinders, half an inch thick, and roll; on this spread about one inch of gravel for top-dressing, then finish in the same manner as described for roads; moisten, and roll. The surface is to be left rounded and smooth, as well as hard. Other, but much inferior, walks are made by simply digging a bed six or seven inches deep, somewhat depressed in the center, and filling up with gravel to within one inch of the border. If, by action of the roller, the walk is depressed, and below the intended swell or shape, an additional coat of gravel is needed to bring it up to the proposed height. It is then to be smoothly rolled. Inferior constructions to those given do not answer the purpose intended by this work, our object being to produce the best results for the least money. Walks in artificial flower gardens should be two feet wide; a bed from four to six inches deep may be made, in which spread a layer of shavings, tan, or coal cinders, from two to three inches thick, then gravel of the same thickness, which is to be well pounded. Shavings, tan, or coal cinders, tend to keep the walk dry, elastic, and free from weeds. Special care is recommended to secure in both walks and roads a gentle and smooth rounding of their surface, and that they be neatly finished on the margins.

LAYING OUT CURVED LINES FOR WALKS OR ROADS.

Communication roads or walks leading from the gate to the house, or thence to another object, should, if possible, have a graceful, almost direct curve, so as not to create a desire to shorten the distance between the two objects by making a track through the lawns.

In roads the curves should not be so sharp that teams will naturally cut down the borders more and more, until the new track becomes a natural and easy curve. In this case, the improver will be forced to alter the sharp curves and build the road where it ought to be, or he will be constantly repairing the borders. Figure 20 gives the kind of curve to be

Fig. 20.—INCORRECT CURVE FOR A ROAD.

avoided in laying out a road or drive between two objects. The line as it should be is shown in figure 21. Pleasure drives and walks differ from ordinary roads, inasmuch as with the former time is not considered in reaching the object desired; still their curves must be graceful and easy.

Considering the above principles, we will try to give to the reader practical hints in laying out curves. Supposing a communication road has to be laid out leading from one object to two or three others, as, for instance, from the gate to the house and from the house to the barn. The eye of the improver will first cast a natural curve line upon the ground, corresponding with the plan or map and the principles given

Fig. 21.—CORRECT CURVE FOR A ROAD.

in grading. This preliminary line is marked out by a few stakes about twenty-five feet apart, and adjusted until the general curve appears satisfactory to the eye; then begin to drive stakes, from the starting-point along the whole line at equal distances, say five feet apart, and loose in the ground. The stakes should be sawed or split from inch pine boards, about fifteen to eighteen inches long, one inch square, and pointed at one end while square on top.

From *A* in the diagram, figure 22, as the starting-point

Fig. 22.—LAYING OUT A CURVE.

of the curve, draw an imaginary line over stake *B*, which should be set as near to the true line of the curve as possible, or lay a ten-foot pole from *A* to *C'*. Standing at *C'*, and looking towards *A B*, place the stake *C* at the point indicated in the diagram, say two inches to the right or left of the straight line *C' A*, as the course of the curve may require. When the proper position of *C* is found, drive the stake firmly and strike another straight line over stakes *B* and *C*, and fix the position of *D* at the same distance from *D'* that *C* is from *C'*, and so on. If the curve bends sharply, the distance of the stakes from the straight line must be increased in proportion. If the work were continued with an offset of

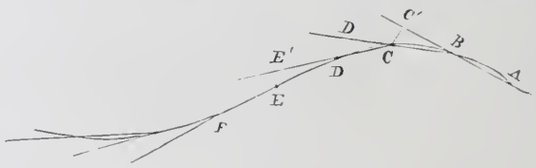


Fig. 23.—A CURVE REVERSED.

two inches, as described above, a perfect circle would be the result; after several hundred stakes were set, the operator would arrive at the point from which he started.

Where a curve reverses, the distance from the straight line will decrease until the three stakes form a straight line, when the offsets will commence to increase again, but on the left-hand side, if the offsets have been taken before from the right-hand side, as shown in the diagram, figure 23.

Another very simple mode of laying out curves is to take a long rope (fig. 24), such as a clothes-line, a heavy one being preferable; fasten it to the starting-stake, roll off about forty or fifty feet, and begin to move and adjust the line or rope from the starting-point while holding it high enough above the

ground to allow the line the necessary movements until it suits the eye; then sink the line in the hands a little and move

Fig. 24.—LAYING OUT A CURVE WITH A LINE.

gently backward; lift the line again, not pulling, but merely raising it from the ground, until you come to the desired point, when again move and shift until the line forms a curve corresponding with the preceding one. A general direction should also be given as in the first method by a few stakes. After the curve is thus adjusted to a length of about one hundred feet, stakes should be driven along one side of the line, when the rope may be removed about sixty feet back towards the operator, so that he always will have a distance of thirty to forty feet of an adjusted curve-line before him. Both methods will, however, require a little experience, but the operator will soon get used to it. After one line of the road or walk is laid out as above described, the opposite line, giving the width, is to be measured off.

In curve-line this simple process, however, requires some attention, as the width is measured in the direction of the radius of the circle of which this curve is a part. It is generally guess-work with the operator who fixes the location of the center, and from this point stakes off the width of the road.

Another method is to take a pole exactly the width of the road or walk, hold one end to one of the stakes, and mark

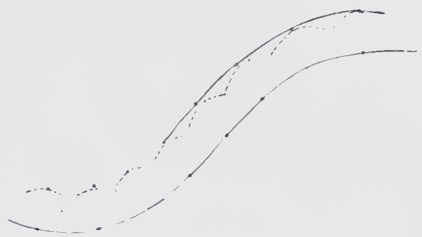


Fig. 25.—MEASURING THE OPPOSITE SIDE OF A CURVED ROAD.

with the other end about three feet of the circumference, which gives very nearly the farthest point, or its width in the proper direction. (See fig. 25.)

PRACTICAL HINTS ON GRADING.

Those who undertake grading are more apt than otherwise to overdo it. For our purpose, much grading is not

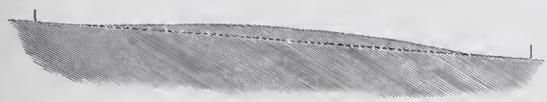


Fig. 26.—GRADING ON LAWNS.

necessary. Whatever amount of it is done, do not touch nature's gentle rise and fall. On the other hand, any imperfect dents or abrupt hollows on the hill-side, or on the gracefully sweeping dale, should be filled, and its surface made to correspond to the surrounding grades. We have spoken against straight roads, and we also object to stiff, level plains; they have their charm and their usefulness, but not on limited or ornamental grounds, except in such small portions as are re-

Fig. 27.—GRADING DOWN EMBANKMENTS
The Dotted Line shows the Old Embankment.

served for playgrounds. A perfectly plain lawn will appear hollow, but raise it, say one foot to every fifty feet, and then its appearance to the eye would be level. The surface ought to be rounding, or gradually swelling, as in fig. 26.

Embankments are very objectionable, especially about the house, and should be removed; should its removal expose the foundation, a neat water-table can be made out of cement, to cover it. In removing the embankments around a house, we, nevertheless, advise leaving a gradual easy grade from the house, as in fig. 27, to drain off the water, as well as for its appearance.

Grades must not be sudden, except around large ornamental rocks, or in rambles, where they may be introduced for variety, and occasionally on a picturesque bank and shore of a lake or pond. Variation of a grade, sometimes running very gradually to the water's edge, then slowly rising, to cap with verdure a miniature protecting rock or cliff, increases its beauty. A road, as previously hinted, should follow the course

Fig. 28.—CUTTING THROUGH HIGH GROUNDS FOR THE PROPER GRADE FOR ROADS.

of the lower grounds, yet reference should be had to the height to which it must lead, and it must not rise too suddenly, or both usefulness and beauty will be impaired. Cases arise that compel cutting through higher ground; when this happens, the sides should be graded back in a rolling line, and on the sides of roads or walks there should be a nearly level margin, at least three feet wide, whether the grade ascends or descends, as shown in fig. 28.

The earth removed from the road-beds can be applied to no better purpose than for grading the lawns. Small knolls should not be made, nor suffered to remain, whether for the

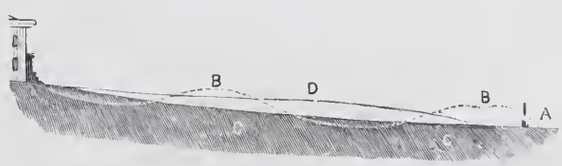


Fig. 29.—PROFILE OF AN IMPROVED LAWN AND DRIVE.
A, Public Road; B. Original Surface of the Ground; C, Grade Line of Drive; D, Center Line of Lawn.

purpose of elevating statuary, or a would-be variegation of surface. They are insignificant and derogatory to statuary,

and produce an artificial effect, not compatible with good taste in landscape architecture. The deposits of muck in swamps,

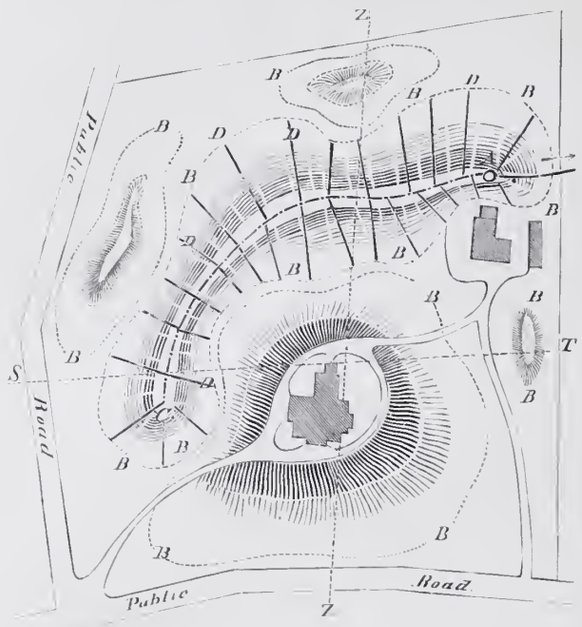


Fig. 30.—PLAN OF A LOT NEAR CINCINNATI, O.
A, Sink at the Base of Main Drain; B, Contour Lines of Excavation and Filling; C, Highest Point of Low Ground; D, Lateral Trenches for Guides.

bogs, or peat holes, should be used to enrich the land. In fig. 29 a profile view of an improved lawn and drive is given.

Grading can be made to give varying forms to the shores of ponds, which are much more pleasing and interesting when allowed to be occasionally irregular, with here a cape, and there, as it were, a bay. An island, not distant from the shore,

Fig. 31.—SECTION OF BOTTOM LINE *A C*.

produces a good effect, but more will be said of islands under the treatment of water.

To illustrate the manner in which ground that is nearly level may be given a more picturesque appearance, we give in fig. 30 a plan and description of a four-acre lot in the suburbs of Cincinnati, O., of which the highest portion of the ground was originally only twenty inches above the natural outlet of surface water or the lowest ground.

After the location of the house, barn, and principal roads was decided, a natural outlet for a main drain was found about

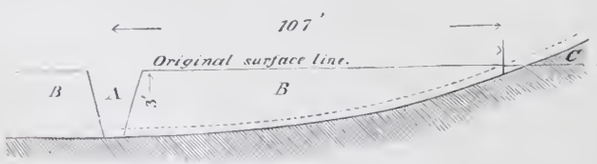


Fig. 32.—SECTIONAL VIEW OF LATERAL TRENCHES.
A, Bottom Line Trench; B, Lateral Trench or Guide; C, Point where Filling Begins. The Dotted Line Shows the Height of the Top-soil.

three hundred and fifty feet from the northern boundary line in a small ravine crossing a neighbor's lot, with about ten feet of fall in its whole length. This drain was laid from its outlet to the point, *A*, with seven feet depth at this point, which gave three feet fall to the ravine. Then the artificial elevation and depression, *B B B*, was marked in its rough outlines by stakes. The whole tract of land inside of the stake line was plowed, and all top-soil within 25 feet from the stake line scraped into heaps along the outside of the stake line at convenient distances from each other. The remaining top-soil was carted to the nearest heap by horse-carts. The top-soil had an average of six inches in depth. An irregular, curved line was then staked out, about through the center of the intended depression, *B B*, terminating at *C*. A section of the bottom line is represented in fig. 31. The whole length from *A* to *C* was 520 feet.

The depth of the main drain at *A* was 7 feet below the original surface line, leaving 3 feet 6 inches to excavate in order to produce the artificial depression. At *C* the depth was decided to be 2 feet 6 inches, giving a natural fall to point *A* of 1 foot. According to this, a trench was opened about 5 feet wide along the curved line *C A*, starting at *A* with 4 feet depth, as 6 inches more depth was taken out on account of the 6 inches of top-soil which had to be replaced after the subsoil grading was completed, raising gradually to 3 feet depth at the point *C*, digging here, as well as on any other point where top-soil had been removed, 6 inches deeper.

Having completed this trench, which was a guide for the lower or bottom grade, we proceeded to open cross trenches on both sides as guides for the slope lines, starting from the

Fig. 33.—SECTION OF LINE *Z Z*, Fig. 30.

bottom grade trench in a radial direction to the proposed elevations, or the original surface. These cross trenches were from 50 to 60 feet apart. Figure 32.

Calculation was made of the amount of subsoil gained by this depth of the depressed ground; also the amount of soil taken out of the proposed foundation and cellar of the building, which gave an easy, natural grade from the public road to the house, and a gentle slope for the main and side lawn, raising the lawns around the mansion 4 feet 3 inches

Fig. 34.—SECTION OF LINE *S T*, FIG. 30.

above the original dead level, and producing in a western direction an undulation of considerable extent and very satisfactory effect, which afterwards was happily increased by a judicious grouping of trees. A section through the line *Z Z*, fig. 30, is given in fig. 33, and fig. 34 shows a section through the line *S T*. In extensive grading of this kind, a practical surveyor or landscape architect should be consulted, as graceful lines of slopes can only be gained by calculation.

After the subsoil grading was completed, drains for the whole area were laid; tiles were laid 3 feet deep, but where this depth did not reach the original ground, the fall of the lateral drains was adjusted to the required depth. No tiles were allowed to be laid on made ground, but where this would have happened, the fall was taken from the original surface. This

preliminary work was finished by replacing the top-soil, which had been in heaps.

The work commenced with the excavation for the building in May, and was completed in the early part of August. A month after, the whole ground was seeded in with lawn grass. The following spring the house and barn were completed, the building material removed from the ground, and the final finishing and planting began.

FENCES, WALLS, AND HEDGES.

With regard to fences, walls, and hedges, taste, adaptability, and cost, are to be considered. The most expensive is not always the most tasteful, nor most appropriate. We shall endeavor to describe them more particularly with reference to appropriateness and taste, than to cost, as each improver will best know what he can afford, and what would correspond either with the simple neatness of the cottage ground, or with the grand villa. Fences are used for several objects, principally for keeping our own land distinct and separate; also to prevent intrusion, and for ornamental purposes. For the latter purpose they are decidedly objectionable. When there is no necessity for a fence, do not build one to cut up the land, and define its limits to the spectators. Landowners would have the credit of owning more land than they really possessed could they do away with fences, which always make the property appear smaller than it is. Therefore, we prefer such fences as are least conspicuous, except when something rich and tasteful is made. In order more perfectly to define fences, we shall divide them into three classes: The first, as adapted to the front ornamental grounds; the second, side, division, and garden fences; the third, rear fences, etc. Under the first class come the several plain stone-walls,

Fig. 34.—DIFFERENT GRADES AGAINST WALLS.

hammer-dressed, or rock-face, to which we add a brick wall, with a stone coping, especially with a brick house, as it can be made easily, and variously ornamented, and, in some places, is less expensive than the stone. The height of these walls is between two and three feet above ground, and at least eighteen inches thick. When the ground inside, close to the walls, is of higher grade than the sidewalk and the wall, it should be graded down to the coping of the wall, as shown in figure 34.

Iron fences are familiar to all, and are a desideratum when light and of pleasing patterns. They are costly, but once put up, with a good foundation, they will, in the course of time, prove economical.

Wire fences, though little known at present in this country, will soon gain the favor they merit. They have been rapidly adopted in Europe, and special attention was paid to them at the late universal exhibition in Paris. Their durability, lightness, and little cost, place them above all others. Being almost imperceptible, they do not obstruct the view on ornamental grounds, while they possess all the desirable qualities of a good fence. We do not wish to convey the idea that a fine stone-wall or an iron fence is less worthy, but the wire fence is appropriate to the elegant residence as well as to the more humble country home. For this kind of fence, posts of cedar, locust, or chestnut wood may be employed. We give preference to an iron bar, two inches wide, and a half inch thick, set four inches into a stone foundation post, which is about one foot square, and three feet below ground, with a projecting trimmed top. Holes are drilled through the bar, from eight to twelve inches apart, or even closer, nearer to the ground. Then pass a No. 8 annealed wire through each hole, running them parallel, and through each successive post or bar. The end posts or bars must be firmly secured, so as to allow the tightening of the wires. Each wire should have, somewhere in its extent, a swivel, or tightening lock. Wooden posts are treated the same as iron bars or rods. The iron bars are neater, and more appropriate for fronts than the wooden posts, which are excellent for side fences, whenever it is desired to keep an open or unbroken view, either upon a pasture field, woodland, water, or distant scene. Wire fences are of manifold patterns and styles, from parallel wire net-work, to many other combinations and varieties. Should boys trouble them, a light coat of coal-tar is a fine remedy, as well as a good preservative of the iron. Annealed wire is recommended, as it retains its place, and is not easily bent and twisted.

Picket fences are sufficiently used everywhere, but are objectionable for truly ornamental purposes. They are costly, requiring, if well kept, annual painting, frequent repairs, and rebuilding; and if kept in the best order, are repulsive, as well as stiff and unnatural. The smooth, round, or square rail fence, consisting of two or three bars and posts, may be quite becoming in some cases. Often a slight correspondence of style creates a pleasing harmony. A change or alteration of a fence very often improves the whole appearance of a place. Fences of various descriptions can be neatly made by giving them a height of only eighteen inches to two feet, set on a stone wall of about the same height. The various shades of brown or drab are good colors for wood fences; black, brown, green, or bronze, are used for iron.

Our attention is next directed to the hedge, which is only used where unpleasant objects need to be kept out of sight, or where their shelter is desirable for gardens or outbuildings. When planted near the house, they are very detrimental, unless, as stated, to hide objects of no interest. As the house ought not to be cramped in space, and should always afford as liberal a view as possible, it is better to remove such things as require a hedge to cover them further away from the house. The finest, most hardy, and easiest of culture, are the following evergreen hedges: Arbor Vitæ, Norway Spruce, and Hemlock. Of the deciduous kinds, we give the useful and beautifully flowering Japan Quince, Buckthorn, Hawthorn, and Osage Orange; the latter is most formidable, and requires more care when young, but after a few years

is impassable by either man or beast, and forms a bright, glossy, durable hedge. The trimming of hedges should be even, according to a line, and be as low as possible, and yet hide the objectionable object, or else the lower branches will die out and ruin the hedge. Where there is sufficient space, they may be made quite ornamental, and natural; instead of representing a straight line it should be made irregular, forming various recesses, and projecting groups, changing in form, height, and color, by using different kinds of shrubs and evergreens. Hedges require considerable room, and absorb the richness of the earth around them. The plants should be placed nine to twelve inches apart; where the soil is poor, a trench should be dug three feet wide, and about two feet deep, and filled with good loam in which to set the plants.

TREES AND SHRUBS.

In introducing the reader to the kinds of trees and shrubs, we will give neither the nurseryman's catalogue, nor the minute descriptions of the botanist. The object is to enumerate here the prominent features of such plants as are easily obtained and well known, adding only a few new ones that are recommendable for their good qualities and peculiar characteristics, as well as their adaptability to this climate. It is well known that the botanical descriptions are of little or no interest to the masses, nor do they give any clue to the effect sought to be produced in Landscape Architecture.

The nurseryman's or the botanist's description of trees is such as would indicate a marked difference in the appearance of species and varieties, which, however, is not generally the case, and in many instances it requires a practical and skillful eye to detect the peculiarities that distinguish one tree from another of the same genus. No one ought ever to select a tree or shrub merely for its pleasing or novel name; cases occur to us, where trees were selected because the name seemed to indicate something quite new and superior, while they proved to be varieties differing so little, that one not accustomed to their slight distinctions could not appreciate the difference, which is really unimportant for general effect in Landscape Gardening. It often happens that such new trees or shrubs are not sufficiently hardy to stand our climate, and the trial of them is usually an expensive experiment. Those who desire to collect an arboretum, whether extensive or limited, can consult botanists or landscape architects. The essential points necessary to be considered respecting trees and shrubs in landscape architecture, are those which prominently distinguish them and give them character.

The first of these is form or outline, of which there is the round, oval, pyramidal, and spiral. Then the mode of branching, which may be drooping, horizontal, or upright, and straight, curved, or angular. The color of the trunk and the smoothness or roughness of the bark may be considered for their effect in winter, but no groups of plants should be arranged for one season alone, but the effect in winter, summer, and fall, are all to be considered.

In winter bring out the contrasting evergreens and trunks, and in summer paint the landscape with the soft and pleasing shades of green; while in the fall let the struggling monarchs of the forest clothe themselves in their bright array of contrasting crimson, purple, and gold.

The selections here given are not made especially for the gay blossoms of the trees and shrubs, because they are of short duration, and besides a superabundance of flowering trees on ornamental grounds at once detracts from the natural effect and gives to them an air of artificial arrangement which it is very important to avoid. The improver should endeavor to select such trees as will most likely do well on his land. Some trees require an amount of moisture which will destroy others, and some trees are prosperous on a poor gravel, etc. Any tree will thrive and do well on a rich, slightly sandy loam, and it is sometimes necessary to provide this for the choice lawn trees. The larger trees are designated as first class, and the smaller or medium ones as second class.

DECIDUOUS TREES, OR THOSE WHICH SHED THEIR LEAVES IN AUTUMN.

MAPLE.—Acer.

Norway Maple.—*Acer platanoides.*—An oval, compact tree, with a brown trunk; leaves quite large, of a dark hue. As to size it is of first class and a choice tree.

Sugar Maple.—*A. saccharinum.*—A common, well-known tree; its trunk is gray, and its leaves smaller and lighter than those of the Norway Maple.

Scarlet Maple.—*A. rubrum.*—This combines many good qualities; its bright scarlet blossoms appear in April, and its foliage is brilliant in the fall; it makes a good shade and is free from insects. It thrives in either dry or moist soil.

English Maple.—*A. campestre.*—A second class tree, forming a spreading head. This tree for its form, height, etc., is very desirable.

Silver-leaved Maple.—*A. dasycarpum*,

Fastigiate Maple.—*A. fastigiatum*, and

Sycamore Maple.—*A. Pseudo-Platanus.*—Are all rapid-growing trees. The first peculiar for the silvery tint of the under side of its leaves; the second quite erect in the growth of its limbs and form; while the last is a large-leaved maple resembling the Linden tree. These trees are admirably adapted for mass grouping on account of their profuse foliage and large size. The maples are trees full of dignity and grace, giving much shade in summer and richly coloring the landscape with their beautiful leaves in fall.

Ash-leaved Maple.—*Negundo aceroides*, or *A. Negundo.*—The leaf resembles that of the Ash. It is of medium height.

ELM.—Ulmus.

The Elms are large trees and of importance in ornamental planting.

American Elm.—*U. Americana.*—The graceful form of this tree is well known.

European Elm.—*U. campestris.*—Of upright growth.

Spiry-topped Elm.—Has fine upward-growing limbs and twisted leaves.

Cork-barked Elm.—*U. suberosa.*—This makes a showy growth, and is better suited to moist places than the foregoing.

OAK.—Quercus.

The Oak is the most stately and royal of trees, and is called King of the Forest, which title is appropriately applied to the

English Royal Oak.—*Quercus Robur.*—A fine tree for lawns, majestic and spreading.

Scarlet Oak.— *Q. coccinea.* — Is rather tender for this latitude, but thrives in the Middle States; it is distinguished for its scarlet leaves in autumn.

Willow Oak.—*Q. Phellos.*—This has willow-like, narrow leaves, and smooth branches.

Overcup White Oak.—*Q. macrocarpa.*—The prominent outline of this tree is formed by uncommonly large leaves, and presents a marked contrast to the Willow Oak.

Turkey Oak.—*Q. Cerris.*—The tree retains its foliage until May of the following year. It has a natural pyramidal shape.

White Oak.—*Q. alba.*—This species is fond of moist land.

Red Oak.—*Q. rubra.*—The leaves are dark green.

Cork Oak.—*Q. Suber.*—Somewhat tender while young, at which time it requires protectior

Rock Chestnut Oak.—*Q. Prinus*, var. *monticola.*—A tough, hardy tree, and growing where others could not find root-hold.

Pyramidal Oak.—*Q. Robur* var. *fastigiata.*—A tree of rich green foliage.

These are almost all well known, and merit selcetion for their several peculiarities, which are, with few exceptions, indicated by their names. The oaks are first class trees, and require a fair soil, unless otherwise stated. They were formerly considered the best ornamental trees; but the modern style of Landscape Gardening does not use this expression, for the best effect is not produced by any one kind of trees, but by happy combinations of different kinds.

ASH.—Fraxinus.

The Ashes are not wanting in grace or beauty. Specimens here and there often soften or exhilarate the scene, and add greatly to variety in the landscape.

American White Ash.—*Fraxinus Americana.*—The foliage assumes a purple color in autumn.

European Ash.—*F. excelsior.*—The tree has a grand, round head, and is a vigorous grower even on rocky land. A first-class tree.

Black or Water Ash.—*F. sambucifolia.*—Not so large as the preceding, and, as its common name indicates, will grow in wet places.

Flowering Ash.—*F. Ornus.*—This tree renders justice to its name in the month of June.

The Ash tree may well be called a gourmand, as it starves out almost all vegetation around it, and absorbs much of the richness of the land. Therefore we should not allow it to predominate, especially on conspicuous lawns, if we would insure a fresh, green sward.

MOUNTAIN ASH.—Pyrus.

The Mountain Ashes, from the resemblance of their foliage to that of the Ash proper, may, for the purposes of Landscape Gardening, be classed near it. It belongs to an entirely different botanical family, being really a minute fruited species of pear.

European Mountain Ash.—*Pyrus aucuparia.*—A strong growing and very ornamental tree, which produces white flowers in spring, and very bright red berries in fall.

American Mountain Ash.—*P. Americana.*—Produces smaller berries of a purplish tint.

PLANE or BUTTONWOOD.—Platanus.

Oriental Plane, or Buttonwood.—*Platanus orientalis.*—Produces a fine shade and when large is a picturesque tree in its character.

BEECH.—Fagus.

The Beech is a tree of slow growth, but very ornamental and especially appropriate to architecture or buildings, as it forms an agreeable connection between the house and the grounds, being symmetrical and yet graceful. The succeeding species afford an assortment each differing in tint.

European Beech.— *Fagus sylvatica.*— This attains a large size and is much desired.

Cut-leaved Beech.—*F. sylvatica*, var. *heterophylla.*—The leaves are three-lobed.

Purple Beech. — *F. sylvatica*, var. *purpurea.* — The leaves are purple, and the tree is of second size and particularly appropriate to lawns.

BIRCH.—Betula.

The Birches give us a number of species and varieties, of which we choose a few as preferable.

Black Birch.—*Betula lenta.*—Is useful on account of the dark hue of its leaves and branches.

European White Birch.—*B. alba.*—Has a whitish bark and very interesting form.

American White Birch.—*B. alba*, var. *populifolia.*—Has a small leaf shaped like that of the poplar.

Weeping Birch.—*B. pendula.*—A very graceful tree.

The birches are decidedly lovely trees, being light in form, branch, and foliage, and having small, tender leaves attached to slight twigs or branches. The bark of several kinds emits a very pleasant odor. They are exceedingly hardy, and seem to prefer an elevated position, and a rather cold but nutritious soil.

POPLAR.—Populus.

Turning to the poplar, we have a tree widely differing from the birch, both in aspect and in the result it produces

in landscapes. Monotonous lines of structures or groups are sometimes broken by its introduction, which produces striking and desirable changes; however, its use is rare, and taste must be exercised when it is introduced in such cases.

Lombardy Poplar.—*Populus dilatata.*—A tall, erect, spiral, rapid growing tree.

English Aspen.—*P. tremula.*—Is singular for its tremulous leaves, which are set in motion by the slightest waft of breeze.

LINDEN OR BASSWOOD.—TILIA.

The Lindens have an oval and quite regular outline, and considerably dense foliage, which is composed of large, heart-shaped leaves; the blossoms are very fragrant. It grows fast, and soon forms a well-developed, shady tree.

European Linden.—*Tilia Europæa.*—Produces rather small leaves, and usually is much esteemed.

Red-barked Linden.—*T. Europæa* var. *rubra.*—The bark of the young branches is of a red color.

Golden-barked Linden.—*T. Europæa* var. *aurea.*—This has yellow twigs, and is very enlivening to tame or dull groups when mingled with them.

CATALPA.—CATALPA.

Common Catalpa.—*Catalpa bignonioides.*—A tree more original in its appearance could not be desired, and it is remarkable for its strange growth of branches with blunt terminating points, which reach out in every direction with their almost entire sameness. Its large, heart-shaped leaves are of tender green, among which appear, in July, fine upright clusters of flowers similar to those of the Horse-chestnut. Later in the season the fruit appears as long, spindling beans, hanging perpendicularly from the limbs.

Kæmpfer's Catalpa.—*C. Kæmpferii.*—This resembles the above in its foliage, but it is more dense, hiding nearly all the branches; it is a smaller tree, of rounded head, excellently fitted for planting singly on the lawn.

AILANTHUS.—AILANTHUS.

Ailanthus.—*A. glandulosus.*—Also known as the Celestial-tree, and Tree-of-Heaven, is not unlike the Catalpa for its foreign aspect, and like that contributes largely to give a Southern expression to the landscape. This tree will grow in the poorest situation, where the Catalpa would not even sustain life.

WILLOW.—SALIX.

Weeping Willow.—*Salix Babylonica.*—A large tree, well known throughout the States.

Kilmarnock Weeping Willow.—*S. caprœa* var. *pendula.*—Distinguished by its downy leaves and very drooping branches.

Golden or **Fountain Weeping Willow.**—*S. alba* var. *vitellina.*—This has rich yellow branches of an upright growing character. The last three named are of medium size.

Willows belong near or close to ponds or streams, where their gracefully falling, slender branches unite their flowing waves with the reflections in the sheet beneath. The upright growing willows, and an occasionally weeping one may, in some instances, be introduced away from bodies of water with good effect; but it ought to be done very judiciously, and on such low or wet grounds as will justify it. They should never be planted near the house, as it is not their natural location, nor are they an ornamental addition to architecture.

DOGWOOD.—CORNUS.

Common American Dogwood.—*Cornus florida.*—This produces pretty white flowers in May.

European Dogwood.—*C. Mas.*—Bursts its buds of yellow blossoms in the month of April, or a little later, according to the latitude. The berries produced in autumn by these two species are red, and the foliage of that changing nature which so much adorns the fall season with crimson and golden hues.

GINKGO.—SALISBURIA.

Japan Ginkgo.—*Salisburia adiantifolia.*—Is a first-class tree of unique foliage and of rapid growth when once established.

NETTLE-TREE OR HACKBERRY.—CELTIS.

American Nettle-Tree.—*Celtis occidentalis.*—A tree of the second class as to size, and of an effective character in mass grouping, where its red or purplish berries form a pleasing contrast.

SASSAFRAS.—SASSAFRAS.

Sassafras.—*Sassafras officinale.*—Is a good tree for the same purpose as the preceding, having pretty yellow blossoms and glossy leaves of a deep green color.

WALNUT.—JUGLANS.

Black Walnut.—*Juglans nigra.*—Is a grand, round-headed tree.

HICKORY.—CARYA.

Shell-bark Hickory.—*Carya alba.*—This produces the well-known hickory nuts.

Bitter-nut Hickory.—*C. amara.*—This has a smooth and close bark, and bears small, bitter nuts, but like the preceding beautiful, and full of majesty and grace; the superiority of both single planting or mass grouping is well established. The Walnuts and Hickories are lighter in texture than the Chestnuts and Horse-chestnuts.

CHESTNUT.—CASTANEA.

American Chestnut.—*Castanea vesca* var. *Americana.*—Is the favorite, and is thrifty even in gravelly, dry land.

Chinquapin.—*C. pumila.*—Is a beautiful dwarf, and excellent for the lawn; it prefers a moist or wet soil.

HORSE-CHESTNUT OR BUCKEYE.—ÆSCULUS.

Horse-chestnut.—*Æsculus Hippocastanum.*—Has clusters of white flowers. It is much esteemed for its fine classic form and its dense shade; on the whole, a noble tree when allowed room to develop.

Ohio Buckeye.—*Æ. glabra.*—A smaller tree, and is adorned early in the season by yellowish flowers with red stamens.

Red Horse-chestnut.—*Æ. rubicunda.*—Is much admired for its beautiful light-red or rose-colored clusters; this one, like the preceding, attains only a secondary height.

Dwarf Horse-chestnut.—*Æ. macrostachya.*—A shrub-like tree of fine form; it does not flower until August.

LOCUST.—ROBINIA.

Common Locust.—*Robinia Pseudacacia.*—Of the Locust we cannot say much on account of the brittleness of its branches, which are so easily broken by the wind or storm, thus constantly deforming the tree.

Clammy Locust.—*Robinia viscosa.*—This is mentioned on account of its bunches of fragrant reddish blossoms, and the delicate shade of green of its leaves.

HONEY LOCUST.—GLEDITSCHIA.

Honey Locust or Three-thorned Acacia.—*Gleditschia triacanthos.*—The flowers are fragrant and of a greenish-white. This interesting species has a lofty head, a brown trunk, and branches which have a peculiar appearance on account of the thorns that cover them; it likes a rich but sandy soil.

KENTUCKY COFFEE TREE.—GYMNOCLADUS.

There is but one species, *Gymnocladus Canadensis*, which is very different in its general aspect from the Honey Locust. Though its leaves are similar in form, they are very much larger and darker in color. In winter it is not ornamental, as its limbs are thick and terminate bluntly, which gives it a lifeless appearance.

LIQUIDAMBAR OR SWEET GUM.—LIQUIDAMBAR.

Liquidambar, also known as Sweet Gum and Bilsted, *L. styraciflua*, is a medium-sized tree of dark-green foliage, which changes to a purplish-red in autumn; its bark is rather rough. The tree is well described by saying it is simply beautiful.

JUDAS TREE.—CERCIS.

American Judas Tree.—*Cercis Canadensis.*—This, which is also called Red-bud, is a medium-sized tree, and desirable for its small heart-shaped leaf, its pink flowers which appear in spring, and the bright autumnal colors of its foliage. Its growth is good on common fair soil.

OSAGE ORANGE.—MACLURA.

Osage Orange.—*Maclura aurantiaca.*—A prickly tree, a native of the South-west, and there a large tree; but with us it attains only a secondary size. It has a dark glossy leaf, somewhat resembling that of the orange, and is armed with tough thorns. This plant is a little delicate at first, but when once acclimated to its new home, it forms the most formidable and lasting barrier of the glossy-leaved hedge plants.

PERSIMMON.—DIOSPYROS.

Common Persimmon.—*Diospyros Virginiana.*—A loose-spreading tree of the second class, more decorative than the preceding, and equal to the best Maple or Sweet Gum, for the fiery shades it assumes in fall. It is adapted to either wet or dry land.

MAGNOLIA.—MAGNOLIA.

Species and varieties are numerous among the Magnolias, which are peculiarly ornamental trees for the lawn and vicinity of the house. Their blossoms are usually large and cup-shaped; their leaves are glossy and smooth, and vary much in size in the several species.

Cucumber Magnolia.—*Magnolia acuminata.*—The most hardy, and is of a large and noble habit of growth. Its flowers are greenish.

Umbrella Magnolia.—*M. Umbrella.*—This has a spreading head of very large leaves, but is a smaller tree than the last mentioned.

Small Magnolia.—*M. glauca.*—A still smaller variety, which needs protection at first, but will become quite hardy in a few years. Its flowers, which come in June, are sweet-scented; hence it is often called Sweet Bay.

Chinese White Magnolia.—*M. conspicua.*—This, also called Yulan, is the finest flowering of all, producing its blossoms as early as April, before the leaves have made their appearance.

TULIP TREE.—LIRIODENDRON.

Tulip Tree or Whitewood.—*Liriodendron Tulipifera.*—This tree resembles the Magnolias, though differing in the form of its leaves, which have a broad notch at the end. It bears a beautiful flower, from which it takes its name. It grows to a great size, and under favorable circumstances becomes a superb ornamental tree. Like the Magnolias it requires a good soil.

THORN.—CRATÆGUS.

English Hawthorn.—*Cratægus Oxyacantha.*—A small tree, having small-lobed, shiny leaves, and flowering profusely in the months of May and June. It is valuable for lawns, as it retains its flowers for some time. Its pretty bunches of vermillion berries give life and color to its glistening dark foliage. There are several varieties, among which the best are the Double White and the Double Red. For hedge purposes the single flowering will answer, but for ornament the double flowering are far superior.

YELLOW WOOD.—CLADRASTIS.—(Also called *Virgilia.*)

Yellow Wood or Virgilia.—*Cladrastis tinctoria.*—One of the finest American trees and highly ornamental, possessing many excellent attributes. It is generally round-topped. Its foliage has the pleasing looseness of the Locust, and in the

month of June, it brings forth its long, drooping clusters of pure white flowers, which emit a delightful perfume in the evening. In the fall its leaves turn to a light yellow. It is free from insects, and requires a rather moist soil.

LABURNUM.—Laburnum.

Common Laburnum.—*Laburnum vulgare.*—A small, loose tree in its growth, and has pretty, yellow, pea-shaped, blossoms in June. It is also called Golden Chain.

SUMACH.—Rhus.

Venetian Sumach.—*Rhus Cotinus.*—This is often called the Smoke-Tree, and improperly the Purple Fringe. The slender flower-stalks are covered with plumy hairs, and form a light, cloud-like, purplish mass.

CYPRESS.—Taxodium.

American Cypress.—*Taxodium distichum.*—This is a highly ornamental tree, growing to a large size, and is a great favorite for the extreme fineness and softness of its foliage. It is well adapted to either wet or dry soil, but prefers a rather moist one.

Embossed Cypress.—This is by some authors called a *Taxodium*, and by others *Glyptostrobus pendulus.* It is usually in the catalogues as the Weeping Deciduous Cypress. A very graceful and beautiful tree.

LARCH.—Larix.

European Larch.—*Larix Europæa.*—This tree is very graceful while young, but assumes a more picturesque form when old. It is a very valuable tree for the poorest gravelly soil, where it will thrive with rapidity.

EVERGREEN TREES.

The evergreen trees do not present such an extensive list as the deciduous ones. We shall select such as are most desirable for ornament, and at the same time adapted to the climate. Evergreens are productive of exceedingly fine effects, and scenes without them would be imperfect, if not annoyingly monotonous; their combination with the deciduous trees and shrubs gives a delightful contrast.

PINE.—Pinus.

White Pine.—*Pinus Strobus.*—This is familiarly known, and is a desirable tree on account of its light tufted foliage and graceful form.

Austrian Pine.—*P. Austriaca.*—A bold and beautiful tree with clustered, dark tassels of foliage, which is steadily growing and developing. For single planting it is the best, by reason of its unique and dense form.

Bohtan Pine.—*P. excelsa.*—A species with rich silvery, drooping tassels of leaves, and of vigorous habit.

Swiss Stone or Siberian Pine.—*P. Cembra.*—A smaller tree of pyramidal tendency, with thick foliage.

Dwarf Pine.—*P. pumilio.*—A dwarf species, and very pretty for the lawn.

SPRUCE AND FIR—Abies (Picea.)

Hemlock Spruce.—*Abies Canadensis.*—The Hemlock, although common, is esteemed as a very graceful and ornamental tree.

Norway Spruce.—*A. excelsa.*—Noble, rich, and elegant in every way.

Black Spruce.—*A. nigra*—Darker in foliage, but not as valuable as the Norway.

Menzies Spruce.—*A. Menziesii.*—Fine specimens may be seen in the New York Central Park, where it is easily distinguished by its bluish foliage of a rich shade. A superb tree.

Himalaya Spruce.—*A. Morinda.*—This resembles the Norway Spruce, but will not endure so cold a climate.

White Spruce.—*A. alba.*—The tree has a roundish form while young, but becomes more spiral when mature.

Balsam Fir.—*A. balsamea.*—When young, this is a very handsome tree, and is excellently adapted to the purpose of temporarily filling out groups, as it assists in producing immediate effect. The tree loses all its beauty when grown, and it can be removed to allow room for the others that will improve as they grow older if not cramped for the want of space.

ARBOR VITÆ.—Thuja.

American Arbor Vitæ.—*Thuja occidentalis.*—This makes fine hedges, as well as ornamental trees; is of a light-green in summer.

YEW.—Taxus.

The Yews are used occasionally on lawns and sometimes in connection with groups; they are upright in habit, quite thick in growth, and spiral in form. They want a sheltered place and fine soil.

European Yew.—*Taxus baccata.*—A low-growing tree or large shrub, with dark leaves, and small, scarlet berries. There are several varieties, one of which is the

American Yew.—*T. baccata* var. *Canadensis.*—This differs from the above, in its more dwarf habit and lighter and less rigid appearance.

The appearance of grounds in winter depends much upon the evergreen trees which are arranged according to the effect to be produced at that season, yet not without due regard to their summer combination with deciduous trees.

DECIDUOUS AND EVERGREEN SHRUBS.

The cultivation of deciduous shrubs, of which there is an abundant variety, has been neglected by many of our nurserymen simply for the reason that "it won't pay." Trees generally bring higher prices, take less room in the nursery, and the ground can be easier kept in proper condition than where shrubs are cultivated.

The following selection comprising those we think the best, most effective in grouping, and, with few exceptions, perfectly hardy, is divided into three classes.

Class I, are of small-sized shrubs; Class II, those of middling size; and Class III, includes the largest size.

DECIDUOUS SHRUBS OF CLASS I.

Mezereum.—*Daphne Mezereum.*—Is a well-known shrub, and much valued for the beauty both of its flowers and fruit. It produces an agreeably fragrant, purplish flower in April, before the leaves are out. The whole shrub is poisonous to human beings, though the berries are a favorite food for birds, especially the robin. There is a white-flowered variety.

Cytisus.—There are several species, all dwarfish, pretty shrubs, profusely blooming in June and July. The Cluster-flowering, *C. capitatus*, has yellow flowers, as has the Long-branched, *C. elongatus*. A white-flowering species is *C. albus*.

Deutzia.—The Deutzias are rough-leaved, white-flowered shrubs, which remain a long time in bloom. *D. scabra* and *D. crenata* are much taller than *D. gracilis*, which grows only two feet high.

Hydrangea.—*Hydrangea Hortensia.*—A very elegant shrub of fine globular clusters of rose-colored flowers. It needs some protection in winter.

St. John's Wort.—*Hypericum Kalmianum*, and *Hypericum calycinum*, are low, spreading shrubs with gay, bright, yellow flowers.

Dwarf Syringa.—*Philadelphus coronarius*, var. *nanus*, is a sweet-scented white-flowering shrub.

EVERGREEN SHRUBS OF CLASS I.

Holly-leaved Barberry.—*Berberis* (*Mahonia*) *Aquifolium.*—A very beautiful evergreen shrub, with yellow flowers and often purplish, prickly leaves. Flowers in May.

Box-leaved Cotoneaster.—*Cotoneaster buxifolia.*—A very fine, low-growing evergreen shrub, with small foliage and white flowers and berries.

Evergreen Thorn.—*Cratægus Pyracantha.*—A low and neat bushy plant, which bears orange-scarlet berries. No plant has a more showy appearance in winter.

DECIDUOUS SHRUBS OF CLASS II.

Yellow Azalea.—*Azalea Pontica*—A shrub with viscid yellow or orange flowers. The several varieties of this species are beautiful and showy, and flower in May. They prefer a peaty soil and shade.

Barberry.—*Berberis vulgaris.*—The Common Barberry and its purple-leaved variety are very ornamental shrubs of medium size with yellow flowers, blooming in June, and are quite interesting in autumn on account of their clusters of coral-like fruit.

Sweet-scented Shrub.—*Calycanthus floridus*, also called Carolina Allspice, and its variety *C. longifolia* with longer leaves, as well as the Large-leaved Calycanthus, *C. macrophyllus*, are all fine shrubs with showy foliage and flowers of a rare chocolate color; these have a pleasant peculiar odor, and bloom in June and July.

Spicewood or Wild Allspice.—*Lindera Benzoin*, (formerly called *Laurus*,) is a pretty shrub of medium size, with yellow flowers very early in spring.

Red Osier Dogwood.—*Cornus sanguinea.*—A very ornamental shrub, particularly in winter and early spring, on account of its blood-red, conspicuous bark.

Chinese Weigela.—*Diervilla Japonica*, or *Weigela rosea*, of the catalogues, is a most elegant plant with beautiful rose-colored flowers; perfectly hardy, and flowers in May.

Yellow Bush Honeysuckle.—*Diervilla trifida.*—Is a native shrub with fine yellow flowers.

Moosewood or Leatherwood.—*Dirca palustris.*—A native shrub of regular, globe-shaped habit, and with remarkably tough twigs and yellow flowers, which appear early in spring.

Forsythia.—*Forsythia viridissima.*—A showy shrub for the lawn, with deep green leaves and yellow flowers early in spring. A native of China, but quite hardy.

Dwarf Walnut.—*Juglans regia*, var. *præparturiens.*—A large-leaved ornamental shrub.

Common Privet or Prim.—*Ligustrum vulgare.*—The Privets, although common plants, still command a prominent place on a lawn, and an excellent effect can be produced by composing a group of the different varieties, of which there are several, differing in foliage and habit.

Upright Honeysuckle.—*Lonicera alpigena.*—With red, and its variety with white berries, are extremely fine shrubs, perfectly hardy, profuse bloomers, and in winter effective on account of their whitish wood, which is very attractive when mixed with the *Cornus sanguinea*, and planted in front of a dark group of Norway Spruces. Ledebour's Honeysuckle, (*Lonicera Ledebouri*), with a few other varieties, are beautiful plants for grouping.

Japan Quince.—*Cydonia* (*Pyrus*) *Japonica.*—This has fine crimson flowers and glossy leaves, and makes a very desirable plant for the lawn. The Double Scarlet is an exceedingly fine variety, and there are others with light colored flowers.

Rhodora.—*Rhodora Canadensis.*—Is a beautiful and rare American shrub, well adapted for single planting. Its pink flowers appear early in spring.

Missouri Currant.—*Ribes aureum.*—Blooms early in spring, is hardy, and much esteemed. To this yellow-flowering shrub we may add the Red-flowering Currant, (*Ribes sanguineum*); and Gordon's Currant, which is a hybrid with crimson and yellow flowers.

Rosemary-leaved Willow.—*Salix rosmarinifolia*, and other willows, produce a striking and peculiar effect when planted in groups of one kind.

Spiræa.—At least thirty different varieties, are very elegant flowering shrubs of medium size. We shall select such as can not well be spared on ornamental grounds.

The Double-flowering Plum-leaved, *Spiræa prunifolia*; Fortune's Spiræa, *S. callosa;* Lance-leaved Spiræa, *S. Reevesii;* Billard's Spiræa; and the Germander-leaved Spiræa, *S. chamædrifolia*; are all very desirable shrubs and of easy cultivation.

Snowberry.—*Symphoricarpus racemosus.*—Is an ornamental shrub with pure white berries.

Tamarisk. the African, *Tamarix Africana;* French, *T. Gallica;* German, *T. Germanica;* have leaves somewhat like those of the Juniper, and bear delicate pink flowers in spikes. The first named is the best.

DECIDUOUS SHRUBS OF CLASS III.

Sorrel Tree.—*Oxydendrum arboreum.*—Is a very valuable shrub with white flowers and oblong leaves. It prefers a warm but moist situation.

French Mulberry or Callicarpa.—*Callicarpa Americana.*—Is a well-known ornamental shrub, with beautiful violet-colored clusters of berries.

Pea Tree or Caragana.—Has leaves much like the Acacia, and yellow flowers about one inch long. The species and varieties are of a very ornamental character. The best are the Large-flowered, (*Caragana grandiflora;*) the Pygmy, (*C. pygmæa,*) a dwarf-like species; and the Chinese, (*C. Chamlagu,*) which has roots smelling like licorice.

White Fringe.—*Chionanthus Virginica.*—Produces beautiful fringe-like white flowers, and large leaves. A highly esteemed shrub for lawns.

Bladder Senna.—*Colutea arborescens.*—A large yellow flowering shrub, with small delicate leaves.

Rose of Sharon.—*Hibiscus Syriacus;* (*Althæa frutex* of some.)—There are many varieties, which are well-known and old favorites on lawns, on account of their abundant flowers in autumn.

Syringa or Mock-Orange.—*Philadelphus grandiflorus.*—Of this favorite shrub we enumerate the Gordon's, *P. Gordonianus;* and Zeyher's, *P. Zeyheri;* the latter is a large-flowered odorless variety.

Winterberry or Black Alder.—*Ilex verticillata.*—A fine native shrub with oval-shaped leaves, which produces white flowers in June and August. The berries are red or crimson, turning purplish when ripe.

Buckthorn.—*Rhamnus catharicus.*—A dark-leaved robust shrub, with greenish-white flowers and small black fruit.

Rose Locust or Acacia.—*Robinia hispida.*—An irregular growing shrub with rose-colored flowers; and the Large-flowered Acacia, a variety, are both very attractive shrubs.

Common Lilac.—*Syringa vulgaris.*—Has numerous varieties, with from white to purple flowers; among the best is Charles X.

Persian Lilac.—*Syringa Persica.*—A smaller shrub with looser clusters of flowers. White and Purple varieties. The Chinese Lilac and Emod's Lilac are also desirable.

Guelder Rose or Snowball.—*Viburnum Opulus.*—A very ornamental shrub, with smooth green branches and bright green leaves, which, in autumn, assume a beautiful pink or crimson hue. Flowers white.

EVERGREEN SHRUBS OF CLASS II. AND III.

Andromeda.—The Large-leaved Andromeda, *Leucothoë axillaris;* the Shiny-leaved, *L. Catesbii;* and the Panicled Andromeda, *Andromeda floribunda,* prefer a moist peat soil. They are very valuable evergreen shrubs of rather low growth.

Tree Box.—*Buxus sempervirens.*—Is a well-known evergreen tree or shrub. There are several interesting varieties of it, among which are the Gold-striped, the Broad-leaved, and the Silver-leaved. They do well in a shady location.

Darwin's Barberry.—*Berberis Darwinii.*—A fine low evergreen. This species and the Holly-leaved are so eminently beautiful, that too much can scarcely be said in their favor.

Dwarf Juniper.—*Juniperus squamata.*—A very attractive evergreen shrub, with broader and thicker leaves than the other species.

American Laurel.—*Kalmia latifolia.*—This is highly ornamental in its foliage and flowers; is of easy culture in peaty soil. The leaves are oval and smooth; flowers white, tinted with pale pink and delicately spotted

Retinispora.—*R. obtusa,* var. *ericoides.*—Is a newly introduced shrub of charming appearance with its purple-tinted heath-like leaves.

Rhododendron.—The Northern *Rhododendron maximum* is a showy shrub, but the *Rhododendron Catawbiense* and its numerous varieties are far superior; these have most magnificent flowers and large glossy leaves. A group of the latter, when closely planted in peaty soil, will produce a splendid effect in all seasons.

GROUPING.

This subject of grouping we believe to be the most delicate, if not the most difficult, to be treated in such a manner as to lead the improver to a tasteful and proper conception of it. No rule can be established concerning it, for the combination of various kinds of trees in one group should never be imitated on the same ground. No one can ever be a landscape architect who does not possess tasteful originality, and an eye for the beautiful harmony of lines and colors. Before one plants his trees, especially on the principal ground, it would be well for him to visit such places as are acknowledged schools of taste, of which the New York Central Park is the chief. There the various groupings may be studied, and the reasons why they occupy just such a place be reflected upon. The general form and outlines of the groups produce different effects, and tints and colors require particular consideration. A visit to such a place in the several seasons would show that each group had experienced a change, either slight or more striking, and that the changes constantly produced were in harmony with the various surrounding groups. Observation would teach that there was a particular place for each group, and the plants for it are selected with reference to the group they compose, and those that surround it. Groups for purely ornamental purposes vary in size, according to the extent of the place, and the effect required, remembering that lawns are all-important, and that they should not be sacrificed. If there are too many trees, they will destroy the charm of a landscape,—that is, its lightness and freedom.

Groups of shrubs may properly be placed in curves of

roads and walks, so as to give a natural effect, and convey the impression that the curve was caused by a group of trees or

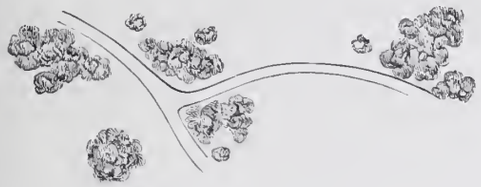


Fig. 36.—GROUPING ON ROADS AND WALKS.

shrubs standing there before the road or walk was laid out, as in figure 36.

The nearest tree of such a group on the road should be from ten to twenty feet from it, so that when grown, it will hang down some of its graceful branches over the margin of the lawn. Shrubbery is planted nearer to the roads or walks, but not nearer than three feet. On the principal lawn, these groups are composed of choice trees and shrubs.

These groups consist of evergreens, mingled with deciduous shrubs and trees, or of deciduous trees and shrubs, or of shrubs alone, according to the effect desired to be produced. A group is also generally formed at the point where two roads

Fig. 37.—REAR GROUPING.

or walks connect. Figure 37 gives the arrangement of a group at the rear of the grounds, and figure 38 one upon a lawn.

Elevated portions of the land (except the principal lawn) often afford fine sites for a group, which seems to greatly raise that place, and consequently give a more undulating appearance to the land. On both sides of the entrance, groups are made, both to hide the entrance from within the grounds, and

Fig. 38.—LAWN GROUPING.

form a pleasing background, as well as to give prominence to the entrance from the outside. These groups may extend for some distance, especially along the fence of the side lawns, unless a fine distant view can be obtained in that direction, either from the house or from a prominent spot within the grounds. Groups are also placed to form backgrounds to smaller groups or trees, to flower-beds, statues and vases, as in figure 39, or to playgrounds.

Some are planted to gradually separate the ornamental grounds from the orchard, vegetable garden, etc., and the planting of groups to cover outbuildings or other objects that are not ornamental is very frequently necessary. If the neighboring or adjoining lot be not conducive to the ornamental effect, groups are then planted near the separating fence in such a way as to hide the dividing straight line. If raised projecting points and recesses or bays be formed in grouping the trees, they will not suggest the idea that there is a fence behind them, which would be the case if such planting formed a belt running parallel to the fence. Where a glimpse of a fine vista can be had, there a space should be left open, so that the view can just be seen through it; in other

Fig. 39.—GROUP FOR A BACK GROUND.

words, plant such shrubs in the opening as will not obstruct the view, but shut out the fence. Figure 40, shows the manner of planting to conceal a fence, and figure 41 gives a ground plan of the same.

Grouping in rambles or in extensive grounds, is carried almost to the extent of forming thickets, where the more common plants can be used, as in the side or back groupings; this class of grouping is called mass grouping.

Dells or low sections of ground ought not to be filled up with planting, as many suppose, but the beautiful sweep of the green turf should be left free to receive the lights and

Fig. 40.—GROUPING TO CONCEAL A LINE OF FENCE.

shadows which move over its undulating surface. Groups of such trees as naturally grow near water may be planted near the shores of lakes or ponds, and if the sheet of water is large, the groups may increase according to its extent. Grouping in such a situation should not obstruct the views from it, but the trees or shrubs should be planted in a position where their shade will cast a pleasing reflection upon the water beneath; this is often accomplished by grouping upon a small

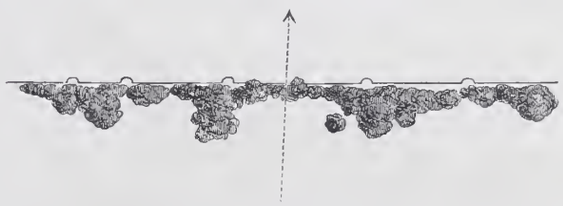


Fig. 41.—GROUND PLAN OF FIG. 40.

cape or projection. This has other ornamental advantages, as the pleasing outlines of the trees are delineated over the

smooth, crystal-like surface. The extreme bends or inlets are other places well calculated for grouping. Grouping immediately around the house should not be done, as we have already stated; neither should the house be left entirely destitute of trees. On the grass plots, or small lawns close to it, groups of small trees, shrubs, and evergreens, may be so placed as not to obstruct the views from the windows, and at a proper distance larger trees may be planted, giving them ample room to grow and expand. For single or specimen trees, the best are selected, and planted in all cases, not nearer than from ten to thirty feet from the road, according to the extent of the lawn and the size and character of the tree.

Where lawns are large, single specimens of trees should be planted here and there, in full view of the spectator. The figures above given are not absolute, but they are considered safe, and we would remark that, where several trees or groups are planted, their position in relation to the lawn and road should differ, in order to avoid all appearance of regularity. A similar group or tree should not be placed on each side of the house, nor should there be any similar attempt anywhere upon the grounds. On the contrary, constant variation should be sought, and at the same time the creation of absurdities avoided. Groups are not to be planted indiscriminately, but a good reason ought to be had for the disposition of every group or tree, either for its beautifying effect, or for usefulness and beauty combined. At the same time, there should not exist a stronger reason against the planting, than there is for it; for a group, attractive in itself, may be placed in such a position as greatly to mar the aspect of the whole principal ground, which would be a gross error. The size of groups depends upon the extent of the grounds. This is applied to the whole. Taken individually, their size or extent should be in proportion to the curve, point, or hillock, on which they are planted, or according to the background, cover, or shelter required. No radical rule can be indicated for this purpose, for as the artist, in painting, does not produce original paintings that are alike, nor sculptors statues, so the landscape architect should dispose this growing, ever-changing picture differently, though all should agree in respect to good taste and good effect. However, the size of groups is regulated according to their combination, which will be spoken of hereafter. The needful subject for consideration is their form. This is a matter very perplexing to the novice. Grouping is well understood by artists who have had much to do with it, but the word is often understood to be synonymous with clustering which is far from the right idea. Worcester says it is "the art of combining objects with a view to picturesque effect," and a better definition cannot be given. But how is this effect to be produced? What form shall be given to groups? By form is not meant any regular shape, from which may be easily concluded, that irregularity, as may be seen in nature's own illustrations, is preferred. This has especial reference to the ground plan, or disposition in planting. Small groups do not allow of great variations in their horizontal outlines, but larger ones afford all the opportunity necessary for bays and recesses, with gradual or bold projections, an illustration of which is given in figure 42.

We have spoken of the ground plan or horizontal disposition of trees for grouping. Hints will now be given in regard to their vertical or top outline, which depends upon the shape and height of trees and shrubs. The rule concerning these is, that the tallest is placed in the middle, not strictly in the center, then come the trees of medium size, and lastly, the smallest are placed on the margin. If groups are so situated that only one side can be seen, the largest trees or shrubs are planted in the rear. The exterior shrubs should not all be of the same height, but be so placed that their top line will present a proper amount of variation. The same principles hold good in reference to groups chiefly composed of trees,

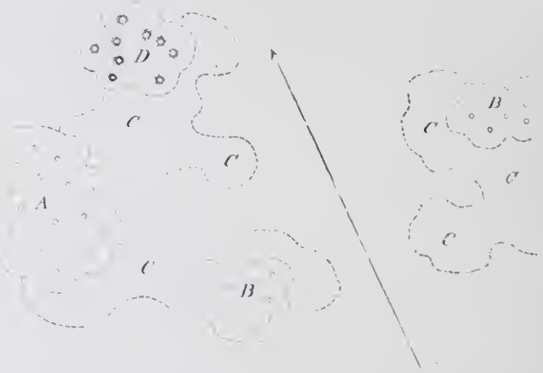


Fig. 42.—MASS GROUPING.
A, Group of First-class Trees; B, Group of Trees of the Second Class; C, Shrubbery; D, Groups of Evergreen Trees.

which should be so placed that those farthest back may loom up above those before them. Trees and shrubs are often grouped with good effect, by arranging them according to their foliage, making a group of small, round-leaved trees, a group of those with cut-leaves, another of pinnated foliage, etc.; but in every case color and size must be considered as equally important.

Sometimes a group contains but one or two trees, the rest being made up with shrubbery; in such groups, avoid having either one tree in the exact center, or one tree at each end, and opposite to one another. Almost any other disposition would be correct. So it is where three or five trees are grouped. Plant them at unequal distances from one another, and not in line. This principle should be carried out in all grouping, whether in small or in mass grouping. The trees or shrubs are not to be planted in one hole, or in any case so crowded as to injure their growth. Small plants can be set closer than larger ones. In grouping trees, they should be sufficiently far apart to give them ample room, in order that, when large, they may not interfere. If immediate effect is wanted, trees can be introduced into the permanent grouping for temporary effect. Temporary planting, however, will prove a rather critical undertaking; when the time for the removal of the supernumerary trees arrives, it requires more skill and taste to point out such trees and shrubs than in first composing the group, and in many instances it requires strong nerves to do so.

Every one will confess that the selection of colors, and the application of them on the canvas to produce a fine picture, is an art acquired only by the experience of one possessing the requisite talent, and that it would be a difficult task to teach painting through writing or books. Landscape archi-

tecture is no less difficult; its colors are living and changing. It is necessary for the artist to be familiar with them, or his landscape may be dull and lifeless in summer, and all in a red blaze, if not entirely yellow, in the fall. His art is to produce the beautiful and picturesque by unity, variety, and harmony, and he must have an eye for these, and ability to produce them, sometimes even against the opposing elements of climate and soil. In the treatment of this subject, this work must necessarily be wanting in fullness and explanation; yet, with the aid of the brief list of trees and shrubs we have given, and the many charming examples of nature profusely scattered, as it were, at our doors, there is no reason why, with a few practical hints, that every owner of a country home can not make it a jewel of beauty.

TRANSPLANTING TREES AND SHRUBS.

Having already described the treatment of soil for planting, we will here give brief instructions how to transplant. Deciduous trees are preferably planted in autumn, immediately after the leaves have fallen. Shrubs may be planted either in fall or in early spring, when the frost is out of the ground. Evergreens transplanted in May will do well, although they need the benefit of the spring rains. Deciduous trees transplanted in the fall have more time to become established before the growth begins to start in spring. It is important that trees and shrubs be planted in soil equally as good as that from which they have been taken.

The holes for receiving them should be sufficiently large to allow the roots to spread without bending or crowding; therefore the size and depth of the hole depends upon the size of the roots, and will need to be from two to six feet in diameter and two to four feet in depth. The earth at the bottom of the hole should be loosened with the spade or piek; from two to two and a half feet of the subsoil should be removed, and its place filled with rich soil mixed with compost or manure. Figure 43 represents in section the condition of the soil after planting. The roots of the tree are surrounded by fine, enriched soil, and the earth below this well loosened. The roots should then be carefully examined, and their bruised or broken parts shortened and pared smooth with a knife; the tree is then held upright in the center of the hole, while the operator is filling in the finely pulverized soil around the roots; the tree, while the filling is going on, should be gently shaken in a steady vertical direction. When up to its proper height the roots are then carefully spread out by hand, each in the natural direction, and the soil packed well, so as to leave no loose spaee around them. We do not recommend the use of water in planting, except when the soil is dry. When water is applied in such cases, it must be before the hole is entirely filled, so to leave a few inches of dry soil to cover and prevent the hot sun from baking the surfaee and forming a crust.

Fig 43.—SECTION SHOWING A RECENTLY PLANTED TREE.

Evergreen trees are generally considered more difficult to transplant, as their roots are much more delicate and impatient of dryness than those of deciduous trees; for this reason they should be removed and planted on a wet or misty day, and during transportation it is recommended to moisten and cover the roots with mats.

No manure should be allowed to eome within the reach of their roots, as it is injurious to evergreens, but a layer of manure ean be placed about one foot below the roots upon which the earth is to be filled in and trodden down, and then the planting may be made in the usual way. The mulching of newly planted trees and shrubs, to proteet from heat and keep the ground moist, is strongly recommended.

One of the most universal and fatal errors in planting trees, says an experienced nurseryman, is that they are placed too deep; we have known many fine and thrifty trees to die from this cause alone; they should not be planted more than an inch deeper than they stood in the nursery; and if the frost is likely to heave them the first winter a small mound can be heaped about the stem to be removed in spring. Large specimens of trees which are to be transplanted from the outskirts of woods or cultivated fields are best prepared beforehand.

In spring, a circular trench of five to six feet in diameter, one foot in width, and about two feet deep, is cut around the tree, in order to form a compact ball, as shown in figure 44. The treneh is filled again with rich soil, which will eause the roots to produee an abundance of small fibres. In the fall, after the first frost has arrested the growth, the trench is to be opened, the soil thrown out, and dry leaves put in its place all around the roots of the tree, to prevent the frost from getting to the bottom of the ball. A hole to receive the tree must be opened before the frost enters the ground too deep. This hole must be about two feet larger in diameter than the ball measures, and about one foot deeper.

Fig. 44.—PREPARING A TREE FOR REMOVAL.

Eighteen inches of good soil is placed in the bottom of this receiving hole, and then covered with leaves clear up to the surface, and a few branches or planks laid over it to keep the leaves in place. In January or February, when the ground is well frozen, the tree is to be removed; the leaves are taken out of the circular trench around the tree and the ball loosened all around on the bottom. A slope is then cut from the side most convenient to admit a stone boat

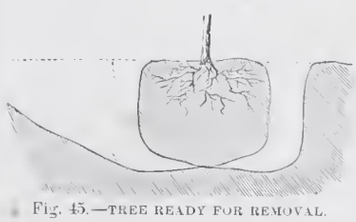


Fig. 45.—TREE READY FOR REMOVAL.

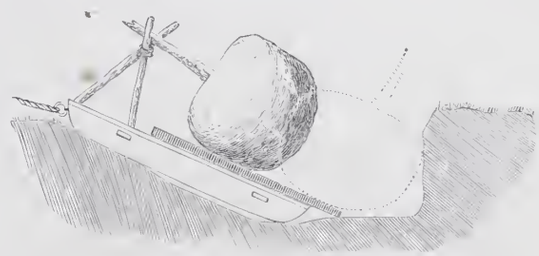


Fig. 46.—REMOVING A TREE UPON A STONE BOAT.

on which the ball is to be moved, as represented in figure 45, where the dotted lines show the surface of the earth and side

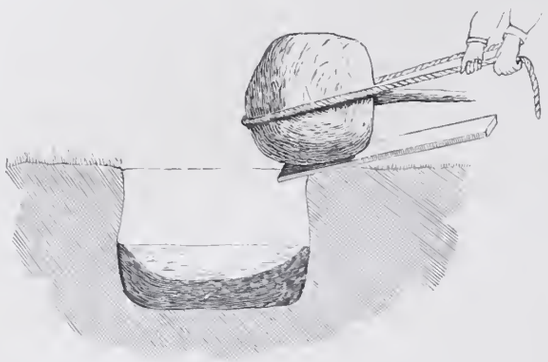


Fig. 47.—LOWERING THE BALL OF EARTH INTO THE HOLE.

of the trench, which have been removed in digging the inclined plane. Figure 46 shows the manner of loading the tree upon the stone boat. The receiving hole, after the leaves have been taken out, is measured, and its size and depth compared with those of the ball. The latter will shrink about an inch or two when frost gets out of it; the calculation therefore may be made to have the ball about level with the surface when planted. The soil which was put in the hole in the fall is now to be so far removed as to suit the depth of the ball, and after that in the center has been trodden hard and correctly measured again, a basin is formed with the soft soil on the bottom of the hole, so that the shock of the ball when let down will be diminished, and cracking, which often splits the roots and ruins the tree, prevented. The manner of letting the ball of earth into the hole, is shown in figure 47. After the trunk is in its perpendicular position in its new place, the open place between the ball and the hole is filled in with rich soil and rammed down firm, so that the tree will not stir when the frost leaves the ball.

FLOWER GARDEN.

Flower gardens are necessary adjuncts to ornamental grounds; we find them on the grounds of the smallest cottage, as well as on the extensive park of a country residence. Volumes have been written concerning the laying out and arrangement of flower gardens, and we suppose the reader has already some knowledge on this subject, but as the general principles are often misunderstood, we will give a few brief hints regarding it.

The size of a flower garden ought to correspond with that of the ornamental ground. The most appropriate place for flower beds is in sight of the house, on warm, sheltered spots, scattered along the margin of the walks, in beds of different forms, or here and there, in front of a dense mass of dark foliage, bordering the lawn. A bed of flowering pæonies on the extreme end of the ground, with a dark background,

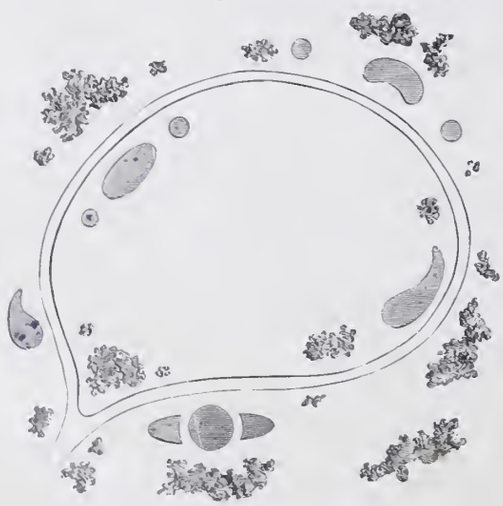


Fig. 48.—PLAN OF A FLOWER GARDEN WITH THE BEDS CUT OUT OF THE LAWN.

has a beautiful effect, and so do herbaceous plants of dark and brilliant leaves. Smaller grounds are more suitably decorated by merely scattering the beds as above described; they are more appropriate, and less expensive in keeping. Figure 48 gives an example of a flower garden in which the beds are arranged in the lawn.

We recommend to have no special walks laid out around the beds, but simply to cut them out of the turf, and to keep the grass always low.

The particular taste of the proprietor or the family, will decide upon the extent or the number of beds to be laid out. A geometrical or artificial flower garden, is composed of symmetrically formed beds of curved outlines, so that the whole group of beds will form an artificial figure. A design of this kind is given in figure 49. Each separate bed is planted with a single variety of flowers; by a judicious selection of plants, it may be made to present a most striking and brilliant effect.

Fig. 49.—GEOMETRICAL OR ARTIFICIAL FLOWER GARDEN.

The following list of plants is given as a suggestion, but the planting may be varied indefinitely, according to the fancy of the owner: 1. Tea roses. 2. Moss roses. 3, 4, 5, and 6. Choice herbaceous plants about one foot high. 7. Senecio elegans. 8. Verbena Lambertii. 9. Dianthus Chinensis. 10. Bouvardia triphylla. 11. Ageratum Mexicanum. 12. Petunia Phœnicea. 13 and 14. Fuchsia. 15. Scarlet-flowerd Geranium. 16. Variegated-leaved Geraniums. 17. Pink-flowered Geranium. 18. Fiery-red Geranium. 19. Mignonette. 20. Pansies. 21. Agathea amelloides. 22. Cistus guttatus.

The favorite flower of our garden is undoubtedly the rose, and a collection of the different varieties, in groups, is called a Rosarium, or Rosetum, of which Loudon, in his "Arboretum and Fruticetum Britannicum," gives the following description:

"Where it is intended to plant a collection of roses, the

best effect will be produced by devoting a group to each section, such as—one to Moss Roses, another to Noisettes, a third to Scotch Roses. These groups ought generally to be planted with dwarfs rather than standards, because the former are more conveniently looked upon by the spectators, but the handsome standard may frequently occupy the center of each group, if it is a circle or a square, or two or three in a line, and radiating from a point, if it is a large or an irregular form. Standard roses in general have the best effect when formed into an avenue along the margin of a walk; and for this purpose they are very suitable for common flower gardens where the groups, instead of being planted with dwarf roses, are filled with herbaceous plants. The size of the different groups in a Rosarium ought to be proportionate to the number of varieties belonging to the section to be planted in each."

Annexed (fig. 50) we give a design for a Rosarium by E. B. Lamb, Esq., well known for his elegant designs in the Encyclopedia of Cottage Architecture, and the Architectural Magazine. The groups in this design are calculated to contain a complete collection of roses. The frames of the pyramids are made of wire or wood.

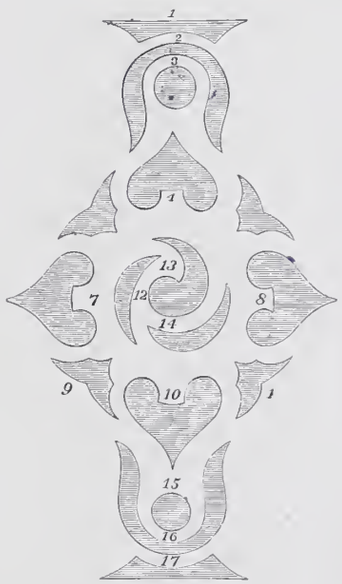


Fig. 50.—PLAN OF A ROSARIUM.

The following figures show the disposition of the varieties in the planting:—1. Provence or Cabbage roses. 2. Tea-scented China roses. 3. Musk roses. 4. Hybrid China roses. 5. Rosa alba and its varieties, one pyramid. 6. Select roses of uncertain origin, one pyramid. 7. Noisette roses, three do. 8. Rosa Indica or China roses, three do. 9. Scotch roses, one do. 10. Rosa Gallica, or Provence or French roses, one

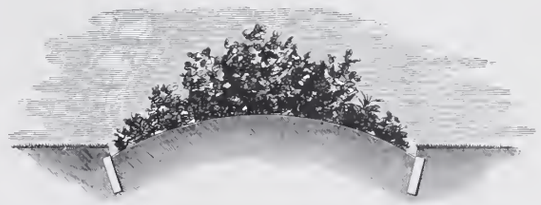


Fig. 51.—A BED WITH AN EDGING OF BRICKS.

do. 11. Bourbon roses, no pyramid. 12. Damask roses, no do. 13. Sweet Briars, one do. 14. Miniature China roses, no do. 15. Rosa bracteata, microphylla, and their varieties, no do. 16. Perpetual or Autumnal roses, three do. 17. Moss roses. In all 17 groups of dwarf and 27 pyramids for climbers.

Experience, however, has taught that where there is no regular gardener employed, the maintaining of such flower gardens is very questionable; the beds which are cut out of the turf need frequent trimming, and the border lines, giving form and character, will soon change if in charge of an inexperienced hand, thus destroying the symmetrical figures of the general plan. In order to avoid this, we recommend the driving of pine stakes, about one inch square, by one foot in length, every foot or eighteen inches apart, close to the edge of the border, in the turf, and level with the same, so as to act as a guide for the trimmer; or a more permanent protection can be made of bricks, set upright, one close to another, and exactly on the line of the border, their tops being covered by the turf, as in figure 51. This mode of preserving the outlines of artificial flower gardens has been tried with success and satisfaction, as almost any person can trim such borders with a common knife without the risk of destroying the original lines. The considerable saving of labor will also be easily perceived.

WATER.

A landscape without water is imperfect, no matter how beautiful otherwise it may be. A broad river, a dashing brook, or even a sheet of standing clear water, gives life and completeness. A never-failing spring is a valuable element in landscape architecture, as it enables us to produce wonderful varieties and picturesque effects.

An acre lot can have its charming pond or its noisy little cascades with the same propriety as a large park its lakes and brooks. The desire of creating ponds, cascades, or other artificial water-works, has, in numerous cases, led improvers to great mistakes. The supposition that there was a constant supply of water has started the idea of laying out a beautiful pond; the elaborate undertaking was carried into effect, everything was in true correspondence, grading and grouping in perfect good taste; but the supply of water gave out in dry seasons, the lake was reduced to a mere frog-pond, became stagnant, and very injurious to health. The result was, that the excavation had to be filled up with soil again.

Artificial ponds or lakes are to be located on naturally low ground, and either excavated or dammed off. The latter


Fig. 52.—RESERVOIR LAKE AT CEDAR HILL CEMETERY, HARTFORD, CONN.

cases are rather rare, as the natural formation of the ground has to form the basin on three sides; the outlines should be

irregular, with projecting points, and the depth nowhere be less than three to four feet, so that the heat of the sun will not

Fig. 53.—OUTLET OF A POND, SECTIONAL VIEW.
A, Sink Basin; B, Gate and Key Box; C, Pipe; D, Original Surface Line.

reach the bottom, and produce a growth of weeds. Figure 52 gives the view of Reservoir Lake, at Cedar Hill Cemetery, Hartford, Conn.

In the chapter on Grading, we have spoken about the formation of the banks, but to make them picturesque, nature must be imitated; the reflection of trees and shrubs in color, size, and shape, the trembling shadow of the giant overhanging tree, the shady recesses, and flickering lines of light, have to be studied.

Trees are not to be sparingly or indiscriminately scattered around the margin, but liberally, in some places, for the sake of a contrasting mass of grateful color or shade. After the location of a lake or pond is decided upon, the size and form staked out, and the surface water-line adjusted by an accurate level on each stake, all top-soil ought then first to be removed, and saved for planting and other purposes.

The bottom of the pond is to be so shaped as to accomplish a perfect draining off of the water by means of an outlet pipe and gate, as shown in figure 53. This will prove to be of great use when it is necessary to draw off the water in case of cleaning, repairing, etc., and should, if possible, be applied to every lake or pond.

The overflow, which may connect with the outlet drain, is to receive or discharge all surface water from the adjoining grounds, besides the regular and sometimes greatly increased supply; therefore, be sure to make it large enough at first. We never heard any complaints of too large outlets, but very frequently about the damage done by sudden overflow of ponds, where the outlets were not large enough.

If the surface of the ground is such as to give sufficient fall, a cascade may form a very natural and attractive outlet. Figure 54 shows how this is arranged at Reservoir Lake.

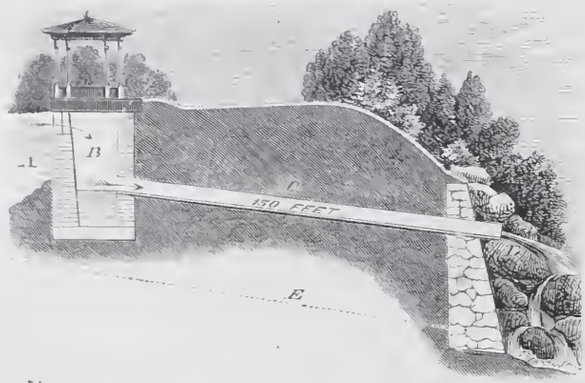


Fig. 54.—SECTIONAL VIEW OF OVERFLOW AND CASCADE AT CEDAR HILL CEMETERY.
A, Reservoir Lake; B, Overflow Sink; C, Overflow Pipe; D, Cascade; E, Location of Outlet Pipe.

The construction of dams for water-works is another point where misapprehension of a very serious character sometimes occurs; a few hints may, therefore, here find place. The ground on which the proposed dam is to be raised has first to be marked out in its full extent, and if the outlet pipe (not to be confounded with the overflow) has to take its direction through the proposed dam, lay out a straight line from the lowest part of the pond or lake, crossing the dam in its shortest place. A cement or iron pipe is to be laid from twelve to eighteen inches under ground. Bed the pipes well in clay

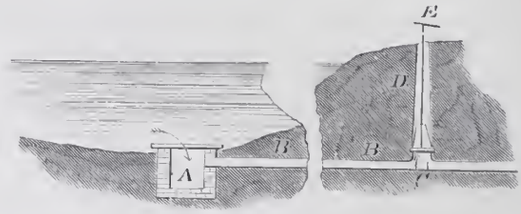


Fig. 55.—SECTIONAL VIEW OF OUTLET AT CEDAR HILL CEMETERY.
A, Outlet Sink; B, Iron or Cement Pipe; C, Gate; D, Key Box; E, Key.

or loam, free from stones or roots, ram it tight, particularly on the bottom and around the tile, so as to prevent the suc-

Fig. 56.—CITY PARK POND, HARTFORD, CONN.
A, Fountain; B, Outlet; C, Overflow; D, Outlet Sink; E, Supply Pipe; F, Outlet Overflow Pipes.

tion of water, which would soon cause leakage. The gate is to be placed at from ten to twenty feet from the outer end of the dam, vertically set, and boxed up; at the head of this outlet, in the pond, a brick or stone sink two-feet square or

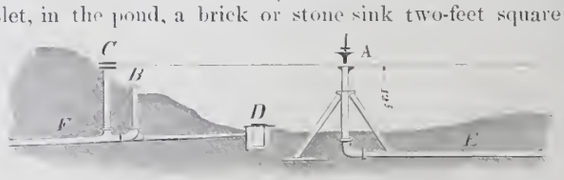


Fig. 57.—CROSS-SECTION OF CITY PARK POND.
Reference Letters the same as in Figure 56.

round should be built, three feet deep, receiving the outlet pipe about one foot below the top of the sink, which is secured by an iron grate or wire net, in order to avoid the stoppage of the pipes by leaves, branches, or stones; also to prevent the escape of fishes when the water of the pond is let off. Figure 55 shows the arrangement.

After the outlet pipes, gate, and sink are properly constructed and secured, the whole track on which the dam is to be built should be plowed and harrowed thoroughly, and stones and roots removed.

The filling and building of the dam should then be done by a gradual rise, from six to nine inches over the whole length and breadth, constantly wheeling, treading, or pounding down the new filling as the work progresses. It should be borne in mind that stones and roots are very injurious to the construction, as the packing around larger stones will not be done carefully enough, and roots, sods, and any other vegetable matter will decay, giving the water a chance of entering, and filling the place. In figure 56 is a plan of the pond at City Park, Hartford, Conn.; and in figure 57, a cross-section of the same to show the arrangements for the outlet and overflow.

Surface-water from roads and walks should not be let into a pond or lake, as such will give the water a muddy color for several days after every rain.

ORNAMENTS.

Ornaments on grounds are of various descriptions, viz: Seats, Kiosks, Pavilions, Vases, Statues, Sun-dials, etc. These, if judiciously disposed, are very effective and useful embellishments, but how often we see country seats and gardens overloaded with them. No less judgment and good taste is required to locate a vase, a seat, or a summer-house on ornamental grounds than any of the preceding artistic arrangements. Duplicates of the same ornament should be avoided; covered or open seats ought to be placed in some distant parts of the ground, where either a fine view or a shady and retired resting-place will give reason for its being there. Hollow stumps of trees, from two or three feet in height, are very desirable ornaments when filled with a choice collection of flowers; they do not mar the extent of lawns as white-colored vases would. Marble or cast-iron vases, bearing an artificial character, are better adapted for places near architectural structures, as buildings, verandas, terraces, or conservatories, or, in other words, to form a connection between the building and the lawn. Solitary fancy trellises (which are usually painted white) of any description are objectionable as ornaments on open lawns, as they impair its size by their conspicuous form and attractive color. Cast-iron dogs, deer, and other figures are nuisances on a lawn, and give a poor idea of the proprietor's taste. A rustic summer-house, on elevated ground, or near the bank of a lake, is

Fig. 58.—RUSTIC SEAT.

highly ornamental, but before copying the clumsy illustrations given in most all books of landscape gardening, we would appeal to the good taste of the improver to see that proportion is combined with neatness.

ROCK-WORK.

A few words may be said about artificial rock-work as an ornament. A heap of stones piled up is often called an artificial rock, but the real artificial rock-work requires, firstly, suitable material, and secondly an eye to make a picturesque

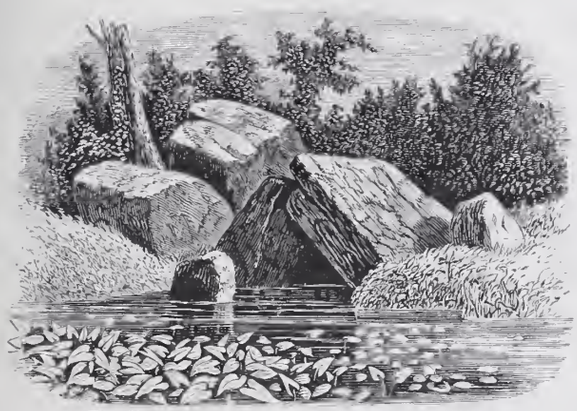


Fig. 59.—ROCK-WORK ON THE MARGIN OF A LAKE.

composition while art is concealed. The material is not everywhere to be found. Large, picturesque, and moss-covered stones are the best materials; the pieces when collected have then to be formed into a picturesque whole. Sometimes a foundation on which to build is required. When rocks of a suitable nature cannot be obtained, a substitute may be built up of common stones, which may be laid up in cement in a natural form, taking care to make a sufficient number of suitable pockets of various sizes to receive earth. After the rock-work is built in this manner, its surface is covered by a wash of cement, and if this is not of a desirable tint, some coloring material may be added. Artificial rock-work is often made by a composition of cement, clean quartz sand, and solution of shellac, made into such irregular blocks as to form, when set together, a picturesque whole.

Another mode is for some purposes very practical and cheap; it consists of a rustic frame work built on planks and connected with galvanized wire and pieces of wood in various directions, in order to produce an irregular surface. A piece of canvas thoroughly saturated with coal-tar on both sides is then spread over the whole frame, giving various projections, to imitate rock-work; the canvas is then thickly covered with a coat of clean quartz sand and allowed to dry.

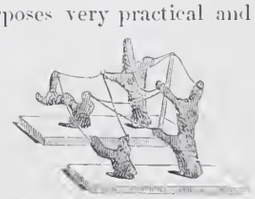


Fig. 60.—FRAME FOR ARTIFICIAL ROCK-WORK.

A judicious planting is the most important feature of ornamental rock-work, whether it be artificial or natural; the decoration of suitable herbaceous plants will give life and

character to it, while without them the whole effect is lost. Plants upon rock-work are apt to suffer in hot weather, and will need watering. Before the construction of any artificial rock-work is decided upon, the improver should remember that without the proper material on hand, the undertaking will be a failure, and is more apt to become a nuisance than an ornament.

Fig. 61.—CASCADE, WITH ROCKS.

TOOLS USED IN LAYING OUT GROUNDS.

The following are the most important tools needed in laying out and improving country homes and gardens: A subsoil plow.—A single-horse scraper, which is well adapted for moving top-soil and for general grading.—The flat-board scraper is useful to repair country roads; it is generally drawn by a yoke of oxen.—The turfing iron is a tool designed to cut turf to give the sward a uniform thickness; the steel blade or cutting part is about 12 inches long and 9 inches wide. It has a wrought-iron handle half an inch square and about two feet long, and is in somewhat the shape of a mason's trowel; the wooden part or extreme end of the handle is about two feet longer, making the handle in all about four feet in length.—The edging iron or verge cutter is used to trim the turf and margins; the turf is cut vertically. This tool can be obtained in the implement stores.—Garden hoes are too well known to make it necessary to give a description.—Shovels are used in filling, loading, or removing earth, while the spade is more appropriate to gardener's work.—For cleaning walks the iron rake is preferable. Wooden rakes are more used for raking grass and leaves.—The English lawn scythe is considered the best scythe for close and neat mowing.—The scoop is a tool used in digging post holes and for cleaning out sinks.—The wheel-barrow. The most useful wheel-barrow for common earth work is the railroad barrow. It is about the right size for a laborer to work all day with it, easy to manage, and very convenient for such kind of work. Barrows having side-boards are preferable for garden work. The roller is of either cast-iron, or stone, and is an indispensable implement for roads, walks, and lawns. The former is generally preferred, on account of easier management and less cost.—T-squares, or boning-rods are strips of one-inch board three feet and nine inches long and four inches broad, having horizontal cross-pieces one foot long at their upper ends. These are used for establishing the levels in grading. Three boning-rods are needed to operate with; they ought to be painted white on one side and black on the other.—A straight-edge and spirit-level are used for various purposes, and cannot be

Fig. 62.—FLAT-BOARD SCRAPER.

Fig. 63.—ROAD-SCRAPER.

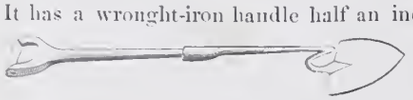


Fig. 64.—TURFING IRON.

Fig. 65.—EDGING IRON.

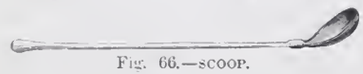


Fig. 66.—SCOOP.

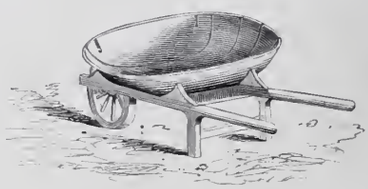


Fig. 67.—RAIL ROAD BARROW.

Fig. 68.—BARROW WITH SIDE-BOARDS.

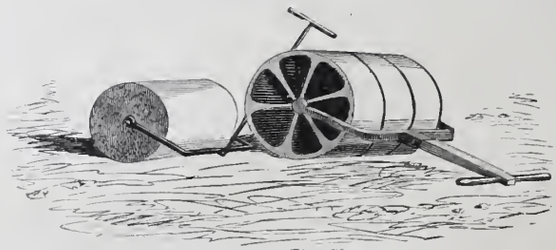


Fig. 69.—STONE ROLLER. Fig. 70.—CAST IRON ROLLER.

dispensed with. In constructing roads and walks, they are used after one line of stakes is graded by the boning-rod; each opposite stake has to be leveled off. On a steep slope where a level walk or road would require too much filling on one side or digging away on the other side of the border line, a deviation of a few inches, according to the breadth of the walk or road from the true level, is advisable; but it must be borne in mind that this descent will run gradually out as soon as the level strikes the ground again. A measuring pole of ten, twelve, or sixteen feet, another of five or six feet long, one and one-

Fig. 71.—T-SQUARE, OR BONING-ROD.

half inch square, or 1 by 2, divided on two sides distinctly into feet and half feet, also a tape-line of about fifty feet in

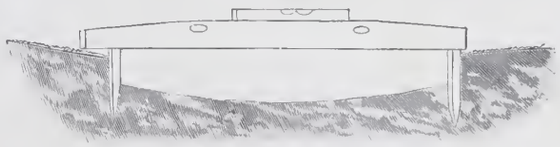


Fig. 72.—STRAIGHT-EDGE AND SPIRIT-LEVEL.

length, will be required. The wire-woven tape-lines are the best and most durable, but for accurate measures we cannot recommend the tape-lines; even the wire-woven ones are inaccurate in their whole length. A Gunter's chain is the only reliable field measure we have.

Tools required for drainage are very accurately described by Waring in his "Draining for Profit," a work which we recommend to those who undertake draining.

IMPROVING NEW PLACES ECONOMICALLY.

A piece of old pasture ground, containing four and a half acres, was purchased by our friend A. H., near Hastings, on the Hudson River Railroad. Its location is very fine, but the land was exhausted. After a neat cottage and barn were erected and completely furnished, three hundred dollars annually was all he could afford for improving and beautifying the ground. Now the important question came up, where and how to commence to make the place productive and ornamental. We soon decided on a plan; an acre and a quarter of suitable ground was laid out for kitchen and vegetable gardens, an acre and a half for an orchard, and an acre and three-fourths for ornamental purposes.

After a careful examination of the ground in regard to the necessary drains, we calculated it would require about two thousand feet in length, at a cost of $120.00. The drainage was first commenced in September; after the draining was completed, the vegetable and kitchen gardens and the orchard were plowed and graded. The ground was naturally good, but had been allowed to run out from neglect; we spread twenty-five loads of good stable manure, at a cost of $75.00, cultivated and harrowed the orchard at once, in order to seed down with grass seed the same month and to plant fifty choice apple and pear trees in November. We calculated for one hundred and fifty standard fruit trees, and arranged for the planting of them in three successive seasons.

The kitchen and vegetable garden could not be laid out this season, as we had already overrun our appropriation for this year by $46.00 Early in the spring of the second year the vegetable grounds were attended to.

The main road or approach to the house was rebuilt, as the proprietor had unfortunately ordered his workmen to make this road before any plan was decided upon. The length was about two hundred feet, the width twelve feet, and the cost of labor and additional material $162.00. No other roads or walks could be built this season, even the road to the barn being left in its rough temporary state, as first marked out by stakes. Our attention and means were turned to grading and cultivating the ornamental grounds, as it was important to procure a crop of grass from them the next year.

Before grading the ground according to the plan, the earth excavated from the roads and walks was thrown in to

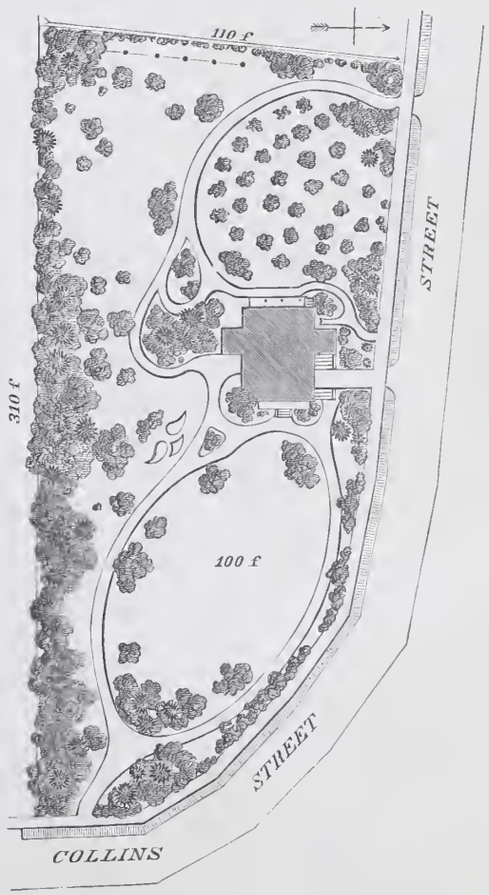


Fig. 73.—PLAN OF SUBURBAN PLEASURE GROUNDS.

be used in grading the lawns. Obtaining about thirty-eight cart-loads of muck from a pond hole in close vicinity, we first sowed about sixty bushels of ashes, then spread the muck in a uniform thickness over the ashes, and plowed and harrowed

it. This was completed towards September, when the grass seed, a mixture of Red-top, Blue Grass, and White Clover, was sown and finally rolled. At this point of improvement we had spent from the beginning of the first year $610.50, which would have put a stop to our proceedings for this season if the order for fifty more fruit trees had not been given, increasing our proposed expenses for the second year to $282.00.

The third year's operations were devoted to ornamental planting. The whole list of plants amounted to about five hundred, from which we selected the most important groups to be planted in the fall, besides about fifty evergreen trees to be planted in spring.

An order including a list of two hundred and fifty plants for this purpose was sent to a nursery, and ground in the rear of the lot was prepared to receive them temporarily until they should be wanted to plant out on the lawns. The places for groups and single specimens were then marked out by stakes and the soil prepared. The first attention was paid to the evergreen trees, so that when arriving they could be planted out in their respective places without delay. After this the soil for deciduous trees and shrubs was prepared, and they were mostly planted out in the following fall.

The soil for planting about two hundred and fifty trees and shrubs was mixed with about sixteen loads of good stable manure, twenty-eight loads of the same muck as used on the orchard, and the top-soil found on the place. The subsoil was carted to a compost heap behind the barn. By calculation we then found that about $50.00 more could be spent, which amount was devoted to graveling the walks already excavated.

The fourth year finished the orchard and ornamental grounds, and completed the road to the barn and the remainder of the unfinished walks. The gardener engaged on the place had, besides his regular business, to attend to the horse and cow. The expense for extra labor in spring, haying time, and fall, was at an annual average of $100.00.

The following tables show the expenditure according to the progress of work.

FIRST YEAR'S IMPROVEMENTS.

Paid for drainage	$120.00
" " manure	75.00
" " fruit trees	14.50
" " grass seed	6.50
" " labor (extra)	130.50
	$346.50

SECOND YEAR.

Paid for roads	$162.00
" " muck	30.00
" " ashes	10.00
" " grass seed	8.50
" " labor (extra)	54.00
" " fruit trees, including planting	17.50
	$282.00

THIRD YEAR.

Paid for 250 ornamental trees and shrubs, including freight	$97.50
" " muck and cartage	28.00
" " manure	30.00
" " labor (extra)	87.00
" " walks, material, and labor	56.00
	$298.50

FOURTH YEAR.

Paid for ornamental trees, including planting	$135.00
" " fruit trees	21.00
" " material and labor, roads and walks	210.00
	$366.00
Total cost for improving the place in 4 years	$1,293.00

ARBITRARY CALCULATION OF COST.

The prices of material and the wages of laborers differ so greatly in the various parts of this country that we only can give an approximate cost for laying out grounds. The cost of materials, such as stones, sand, gravel, soil for filling, and top-soil for grading and planting, can only be given at an average. The price in great measure depends upon the distance the materials are carted.

Sand and gravel are estimated at 20 cts. per cubic yard, or at $1.25, including two miles carting.

The price of top-soil depends on its quality and richness; it may be estimated at $1.50 per cubic yard for fair soil, or $2.50 including the above distance for carting.

Stones for road foundations, as described in treating of the construction of roads, cost $1.00 per yard when transported the same distance. Coarsely broken stones, $2.25; and finely broken stones $3.00 per yard.

Turf for laying borders is 2 to 3 inches thick and 1 foot square, or 1 foot wide, and 3 feet long, which may be rolled up for transportation. The last named size is preferable, as it facilitates the laying of borders, produces a neater appearance, and while rolled up the turf is better preserved. The price is estimated at 5 cts. per square foot, including cutting and delivering as above.

Laborers' wages are estimated at $1.50 per day for 10 hours' work of a common day-laborer.

Man, horse, and cart for carting and removing soil, etc., as they are required for grading, constructing roads, walks, etc., $3.25 a day for 10 hours' work. In the estimate of grading we shall leave out the cost of extra heavy filling and digging, as this would make even an average estimate impossible; where such extra work is needed, it has to be separately estimated and added to the figures given below. By grading we mean simply a general grading and smoothing of the surface, filling hollows and reducing unsightly knolls, which are of about a foot below or above the necessary grade.

I.—Cost of Drainage per Acre.

The cost of drainage will depend on the condition of the land, whether it be clay, hard pan, or common earth. Digging trenches 4 feet deep in clay, or hard pan, costs per running foot about - - - - 3 cents.

In light soil or peat, per running foot about - - - - - - 2 "

Collar tiles, 1¼ inch, at $12.00 per 1,000, including laying, per running foot 2 "

Filling and pounding, per foot - 1 "

This gives in clay soil, or hard pan, an average price of - - - 6 " per foot.

In common light soil or peat - 5 "

The cost of silt basins and sinks will be extra.

For larger areas, Geo. E. Waring, Jr., in his "Draining for Profit," estimates as an average price per rod - - 80 "

Or for a thorough drainage of 4 deep and 40 feet apart - - - $51.20 per acre.

II.—Cost of Grading.

If the ground intended for ornamental purposes is not of an easy, uniform swell or grade, so as to make a general grading necessary, the best way to begin is to plow it, and afterwards harrow; scrape and level according to the directions given under grading.

The proximate cost per acre would be as follows: Plowing, $5.00; Removing stones and roots, $15.00; Harrowing and scraping, $10.00; Grading, shoveling, and raking, $25.00; Grass seeding, raking, and rolling, $10.00.—Total, $65.00.

The cost of grading will decrease in proportion to the increase of the area. The author has superintended the laying out of grounds where grading was a very inconsiderable expense, and again where the cost per acre was over $1,000, including digging and filling.

III.—Cost of Road Construction.

The width of drives on private ground varies from ten to twenty feet and over. Entrance drives on first-class grounds ought to be wide enough to allow two carriages to pass one another. The common width of a road on private grounds is sixteen feet, for which we will give a calculation of the average cost of construction per running foot.

macadam road as described under roads and drives.

Labor.—Excavation of road-bed - - - - - - - 4½ cts.
Center drain, including laying tile and filling 4 "
Laying foundation stones - - - - - - 3 "
Laying of turf borders - - - - - - - ½ "
" broken stones, 2d layer - - - ½ "
" " " 3d " - - - ½ "
Top-dressing and finishing - - - - - - ½ "
Rolling the several layers - - - - - - 3½ "

Labor, per running foot - - 17 cts.

Material.—Foundation stones - - - - - $ 53 cts.
Broken stones, 2d layer - - - - - 42 "
" " 3d " - - - - - 30 "
Gravel for top-dressing - - - - 15 "
Turf border, both sides - - - - - 10 "

Material - - - - - - $1.50 cts.
Labor - - - - - - - 17 "

Total per running foot - $1.67 cts.

gravel road made as described on page 12.

Labor.—Excavation of road-bed - - - - - - - 4½ cts.
Center drain, including laying tiles and filling 4 "
Laying foundation stones - - - - - - 3 "
" turf borders - - - - - - - - - ½ "
" layer of broken stones - - - - ½ "
Spreading gravel and raking - - - - - ½ "
Rolling and sprinkling the different layers 4 "

17 cts.

Material.—Foundation stones - - - - - - - $ 53 cts.
Broken stones - - - - - - - - 45 "
Gravel - - - - - - - - - - - 18 "
Coarse sand for top-dressing - - - 9 "
Turf borders, both sides - - - - - 10 "

Material - - - - - - $1.35 cts.
Labor - - - - - - - 17 "

Total, per running foot - $1.52 cts.

IV.—Cost of Walks per Rod.

A good and durable walk, one that does not need repairs after every rain storm, and which shall be hard and dry at all seasons of the year, is worth some consideration; true, it is more costly than one less thoroughly made, but it is the cheapest in the end. Walks on private grounds are from three to ten feet in width. The most convenient width is five feet. We will give an arbitrary estimate of the cost per rod of constructing such a walk.

Labor.—Excavation and smoothing of bed - 23 cts. per rod.
Laying foundation of chips, small bolders of fist size, or brickbats - 20 " " "
Spreading and wheeling of gravel, raking and top-dressing with coarse clean sand - - - - - - - - 16 " " "
Rolling the 3 different layers thoroughly - - - - - - - - - 25 " " "
Laying turf for borders - - - - 1 " " "

Total - - - - - - - 85 cts. per rod.

Included in the above is the carrying of stones, gravel, and sand, with wheel-barrows from their place of deposit. The rolling of walks is generally done by hand with a heavy iron or stone roller, weighing three or four hundred pounds. The layers of coal cinders, shavings, or tan, on top of the stones, is not estimated in the above.

Material.—Foundation of chips, or brickbats,

1½ cubic yard - - - - - - -	$1.50	per rod.
Gravel and sand, ½ cubic yard -	75	" "
Turf for border - - - - - - -	1.65	" "
Material - - - - -	3.90	" "
Labor - - - - - -	85	" "
Total - - - -	$4.75	per rod.

V.—Cost of Planting per Acre.

In ornamental grounds about one-fifth of the cost of planting may be calculated for the planting of trees, shrubs, and flowers. Again we have to remind the reader of the difficulty of giving even an arbitrary estimate.

The nature of the soil in the different localities decides this question more accurately; however, we shall give it as near as possible. In most every instance soil, where trees, shrubs and particularly flowers are to be planted, needs preparing and thorough digging and spading to the depth of at least two feet. If the soil proves too poor for planting, the size of groups ought to be marked out before the grading is completed and the soil removed; this may either be used for filling, or be carted entirely off the lot.

Soil can be used for planting when of a mellow, moist nature; clay, hard pan, or strong gravelly soil ought to be removed and replaced by muck or other rich mould. All young plants require good soil for their first start, and it is the best economy to plant trees and shrubs in good soil. Where the soil is poor, and injurious to plants, a thorough drainage is the most essential improvement, and should be attended to first. The preparation of grounds for planting, taken at an average, would require the digging and spading

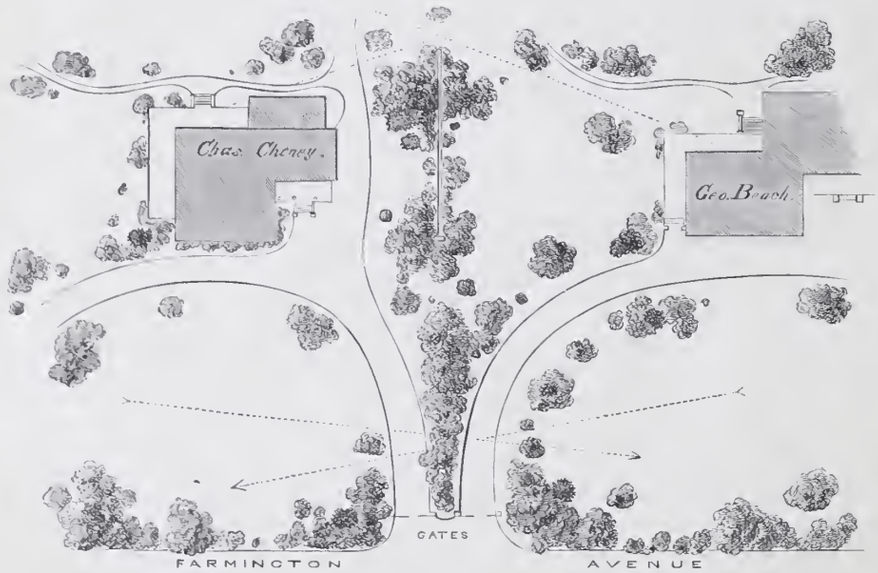


Fig. 74.—UNDIVIDED PLEASURE GROUNDS, THE DOTTED LINES SHOWING THE UNOBSTRUCTED VIEWS ACROSS THE LAWNS.

of about 8,000 square feet per acre, which, at a depth of two feet, makes 1,592 cubic yards.

Suppose 6 inches of the bottom part of the trenches or tree-holes is unfit for planting, and has to be removed, it would require about 150 cubic yards of good soil to replace it. According to this it would cost to prepare for proper planting one acre of ornamental ground about as follows:

Labor.—Digging and shoveling 18 inches of good soil on to the bank, digging out 6 inches of poor soil and removing to a distance of 200 feet, digging up and loosening the bottom of the trench cost $98.70.

Fig. 75.—RUSTIC PAVILION ON THE COVE, ON THE GROUNDS OF E. G. HOWE, ESQ., WETHERSFIELD, CONN.

Or specified: Digging and shoveling to 18 inches in depth, 450 cubic yards, at 15 cts. per yard - - - $ 67.50
Digging, shoveling, and wheeling 148 cubic yards of poor soil 200 feet, distance 25 per yard - - - - - 37.00
Filling 450 cubic yards into the trenches and holes again at 2 cts. per cubic yard - - - - - - - 9.00
150 cubic yards of rich mould or muck at $2.50 - 375.00
Total - - - - - $488.50

In order to complete our estimates of cost, plants, such as ornamental trees and shrubs already mentioned and described, must be calculated by the average surface measure they will probably occupy in their respective places. A Norway Spruce, for instance, will, ten years after planting, occupy over 100 square feet, while the most of our shrubs planted in groups at that time will cover not more than 16 feet of surface measure. The deciduous trees at the end of ten years will but in a few instances

occupy more than 20 square feet, which we have taken as the basis of our calculation. An acre of ornamental ground therefore, according to the foregoing description for preparing and planting, requires 400 plants, which, at an average of 38cts. a piece, exclusive of package and delivery, will cost $152.00 Planting the same by an experienced hand will cost in grounds prepared as above stated, digging and neatly finishing the ground included, 5 cents a piece.

RECAPITULATION.

Arbitrary cost of one acre of ornamental ground:—I. Drainage of the whole area, $51.20. II. Grading of one acre, $65.00. III. Road construction, 16 feet wide, $1.44 per running foot. IV. Walks, 5 feet wide, 85 cts. per rod. V. Preparing ground for plants per acre, including 150 cubic yards of rich loam, $473.70. VI. Plants required per acre, $152.00. VII. Planting and finishing, $20.00.—Total, $764.27.

Excavation of lakes and ponds, rocks and water-works, cascades, artificial flower gardens, and other embellishments, are not included in the above.

CARE AND KEEPING OF ORNAMENTAL GROUNDS.

The general care of grounds consists in mowing lawns, trimming borders, weeding, hoeing, cleaning roads and walks, rolling, and general repairs. Mowing by a machine saves a considerable amount of labor, particularly on larger lawns, where horse-power can be applied, and the lawn is fertilized to a great extent by the cut grass which is constantly thrown out when the machine is in operation. A No. 2 hand-machine requires two men, and will mow $\frac{3}{4}$ of an acre a day. No. 3 requires three men, which are able to mow about $1\frac{1}{2}$ acres in ten hours. A horse-machine of No. 5 or 6 can mow 4 acres a day, however leaving out some sharp angles around the groups which is generally done afterwards with a scythe. Mowing lawns with the scythes requires an experienced hand, and is, when well done, a slow operation. The grass has to stand at least 4 inches high to be fit for cutting; then it requires raking and removing, while a lawn-mower cuts the grass when 2 inches high and it needs no removing. A good lawn-mower can mow and remove the grass of $\frac{1}{2}$ an acre a day, but the work of the scythe is such as is not to be compared with that of a machine.

Swift's lawn-mower is in use on our largest public parks and many private grounds, and has given universal satisfaction. Lawns cut by machine should be mowed every week or ten days in the growing season. The average annual expense for mowing an acre of ground properly is $25.00.

Border trimming is needed about three times during a season, and is done to retain the original lines of curves on drives, walks, flower-beds, groups of trees and shrubs, and is performed with the border shears to cut the grass which grows in a horizontal direction out of the border. After the shears, the turf-cutter is used for a slight vertical trimming. This last operation requires experience and a correct eye. Ten hours' work will trim 60 rods of border. Weeding and hoeing are operations too well known to make it necessary to describe the processes. Wet seasons require more weeding than others, and certain soils are favorable to the increase of weeds. Experience has shown that one acre of ornamental ground, when the proportions of groups and open lawns are as stated under the estimate of planting, can be properly weeded and hoed by one man in a day and a quarter, and when done five times during the season they will cost about six days' labor.

Drives and walks also need weeding, cleaning, and rolling. It is more economical to do this work often than at long intervals, and it gives a much neater appearance to the place. Twenty-five rods of drives, from twelve to sixteen feet in width, require during a full season about fifteen days' work. Twenty-five rods of walk four to five feet wide will occupy, if constructed according to the foregoing description, about nine days' work a season.

The annual care of flower-beds can not be estimated, as it almost entirely depends on their size, form, and kind of plants. The preparation of the ground in spring is the principal cost, and in but a few instances will exceed two days' labor.

COST OF LAYING OUT A ONE-ACRE LOT.—(See plan, Fig. 76.)

DESCRIPTION OF THE GROUND BEFORE IMPROVEMENTS COMMENCED.

The lot is an old pasture ground with a southern slope, and of fair, sandy loam. The north-west corner requires about 125 cubic yards of soil for filling. Fourteen old, partly decayed apple trees are scattered all over the ground. A few boulder stones laying towards the south-eastern corner have to be blasted, and there are signs of springs near the north line. A fine, old, white oak stands towards the public road which runs along the whole eastern boundary. From almost any part of the lot a very picturesque mountain view in a south-eastern direction can be obtained.

COST OF LAYING OUT THE ABOVE DESCRIBED LOT ACCORDING TO THE PLAN, FIGURE 76.

Complete draining, including sinks	$ 67.25
Grading, including 50 cubic yards of rich loam	152.00
Drives 12 feet wide, 228 feet at $1.52	346.56
Walks 4 feet wide, 132 rods at 85 cts.	112.20
Preparing ground for planting, including 78 yards	225.00
Plants, trees, and shrubs	178.00
Planting and finishing	25.00
Total	$1,106.01

ANNUAL CARE OF THE SAME.

Lawn mowing with hand-machine, 2 m., 30 days.		
Border trimming	3 "	
Weeding and hoeing	6 "	
Cleaning and rolling drives	8 "	
" " " walks	4 "	
Total	51 " at $1.50	$76.50

This includes only the ornamental grounds.

FRONT YARDS OF CITY LOTS.

Front yards in towns, as well as in large cities, may be so laid out and arranged as to give a suburban-like appearance to a place, street, or even to a single house. The yard generally extends along the whole front of the building, and

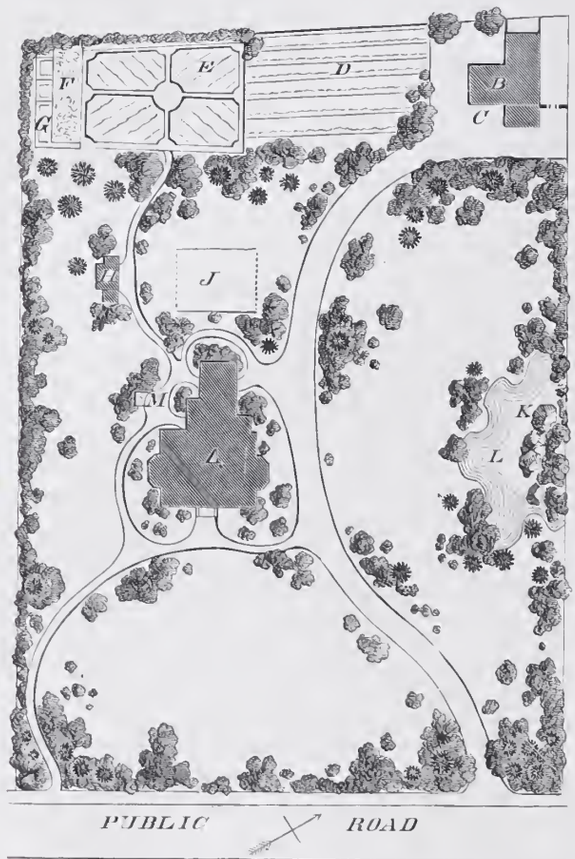


Fig. 76.—RESIDENCE OF A. E. TAYLOR, ESQ., NEW BRITAIN, CONN.
A, Dwelling; B, Barn; C, Barn-yard; D, Corn Field; E, Vegetable Garden; F, Strawberry Beds; G, Hot-beds; H, Tool House; I, Clothes Yard; K, Rock-work; L, Pond; M, Well House.

sometimes connects with a narrow side lawn. The principal beauty of such yards is the green, close, and evenly cut grass on a smoothly graded surface, which, if possible, should slope a little from the house towards the sidewalk. No deciduous nor evergreen trees should be planted on them, unless the distance between the house and sidewalk is large enough to allow the trees to grow and develop without obstructing the view from the windows.

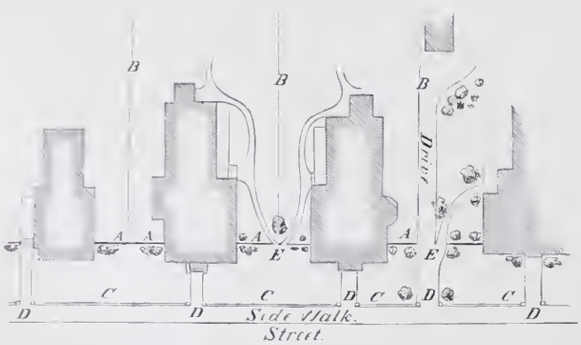


Fig. 77.—PLAN FOR FRONT YARDS WITHOUT DIVISION FENCES UPON THE STREET.
AA, Fences between Front and Rear Yards; BB, Rear Division Fences; CC, Small Lawns; DD, Entrances.

Narrow front yards, when ornamented with one or two

Fig. 78.—COPING FOR FRONT YARDS.

vines or climbing plants, such as the Virginia Creeper, or the Chinese Wistaria, against the veranda or front walls, in con-

Fig. 79.—GATEWAY FOR FRONT YARDS.

nection with a small group of Rhododendrons or evergreen shrubs, or, if the location permits, one or two groups of large-

Fig. 80.—A SUBURBAN PLACE WITH THE ENTRANCE IN THE CENTER.

leaved herbaceous plants, are very effectively decorated. To

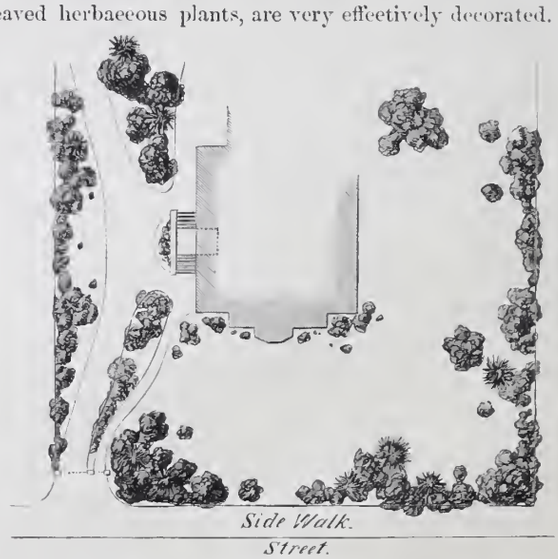


Fig. 81.—A SUBURBAN PLACE WITH THE ENTRANCE AT ONE SIDE.

overload such a place with trees, shrubs, and flowers, is as bad as to neglect the little grass plot.

For new streets where front yards are to be laid out, we would suggest a uniform depth,—from the sidewalk to the houses,—the omission of front fences, and a harmonious and appropriate grouping. An unsightly appearance of front yards in streets is often created by the different styles and patterns of front fences, which vary in height, shape, and color. We would recommend instead of fences a uniform coping or curbstone of 1 foot in height and 1 foot wide, laid on a solid foundation wall, provided at every joint with a semi-circular opening for the discharge of surface water from the front yard (figure 78). The gates should be marked with low posts, projecting only a few inches above the copings, as in figure 79.

A neat wire, or a light picket fence, according to the fancy or taste of the owner, should run parallel with the coping and shut off the rear of the house and ground from the open front yard. We have to make another suggestion with reference to small suburban front yards, which would change them into front lawns, provided the architect is willing to change his plan from the old and generally adopted system of placing the main entrance door in front of the building. When the door is in front, the walk to it divides the lot into two parts of seventy-five feet front, destroying the only little lawn, and with it the basis of an effective ornament.

If the building-plan can be arranged to have the main or principal entrance door on the side, it will prove to be a more economical arrangement for a moderate-sized residence, as we then gain the most prominent part of the house, which, by the first plan is occupied by the entrance door and hall, for a parlor, sitting-room, or both. This alone should determine in favor of a side entrance, while the front yard can now be made to assume the character of a little lawn, and afford facilities for effective decorations.

Figure 80 gives a suburban plan too frequently laid out, with the principal entrance of the house in front. In figure 81 we have a house with the entrance at the side, and the walk so laid out as to allow a much larger space for an unbroken lawn.

HINTS ON BURIAL LOTS.

A cemetery laid out according to the true principles of modern landscape gardening, is a school of art. Private burial lots, when tastefully arranged in the general disposition of monuments, graves, trees, shrubs, flowers and other ornaments, give great satisfaction to the visitor. The monument, as the principal object, should occupy about the center of the uniformly graded lot, and stand on a solid foundation laid below the depth of the graves; the heads of the graves should be towards the monument and about two feet from the foundation.

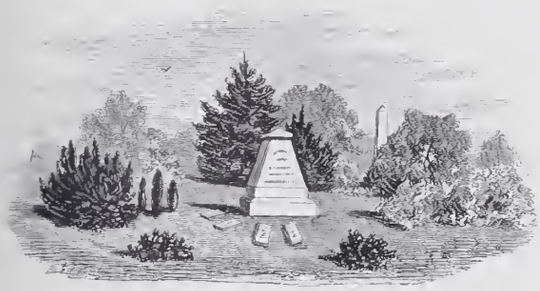


Fig. 82.—FAMILY BURIAL LOT WITH MONUMENT.

A background of trees and shrubs corresponding in size and color should be planted, and the general grouping so arranged that when standing in front of the lot the surrounding monuments are concealed.

No head or foot stones should be erected, but a marble slab of about 18 by 27 inches in size, indicating the name, age, etc., laid flat on top of the grave, a little below the surface line, so that the scythe will not come in contact with the stone. It may be remarked that the slab would settle in the course of time and need raising and refitting, which is very true; but so a mound would settle down over a grave until it was almost level with the ground, and thus make it in less than ten years impossible to find the exact location of the grave.

This mode of making graves has given general satisfaction at the Cedar Hill Cemetery, at Hartford, Conn., not only for the reason above given, but because it moreover preserves an unbroken lawn around the monument.

Fences, hedges, or iron railings, are very objectionable enclosures for burial lots.

A. Strauch, our eminent landscape architect and superintendent of Spring Grove Cemetery, near Cincinnati, makes the following statement in one of his annual reports:

"In respect to the improvement of individual burial lots, I can state with confidence that lots not enclosed are not as much trespassed upon as those surrounded with stone posts, iron bars and chains, for there really seems to be a disposition in the human mind to disregard useless restrictions. Corner stones with the name of the owner and the number of the lot and section engraved on them, are all that is necessary to indicate the boundaries of each lot, while the saving of money to the owner is very great. The dispensing with unsightly fences, hedges, head and foot stones, and other useless appendages, will enable owners of burial lots to spend more in a family monument, which would be the admiration of generations to come, and give sculptors a chance to produce something besides the common marble shafts now rather too numerous at Spring Grove. Too many monuments on one

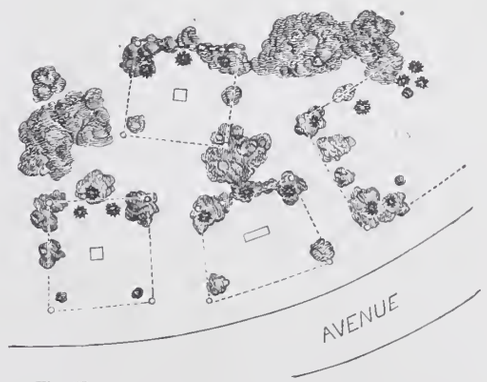


Fig. 83.—ORNAMENTATION OF FAMILY BURIAL LOTS.

lot give it the appearance of a marble yard where they are for sale, as is often remarked by visitors to these grounds."

The general arrangement for the location of graves on family lots will be decided by the number of burials intended on it. The front of the monument is generally preserved for the lot owner or parents; the sides and rear for their children; in the second tier their descendants. If not more than six or eight graves in all are likely to be needed in a family lot, we would recommend, as no graves will ever be opened in the rear, to erect the monument nearer to the rear boundary line, but at least ten feet from the background group so as to give the trees a chance for their development. By this arrangement the front lawn attains a larger size, and more room will be available at the front of the lot for decoration with trees and shrubs.

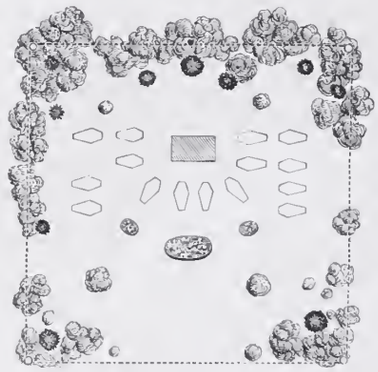


Fig. 84.—PLAN OF FAMILY BURIAL LOT, SHOWING THE POSITION OF THE GRAVES.

Walks should be avoided in burial lots, as they will only be kept free from weeds for the first few years; they are not expensive in their construction, but very injurious to the appearance of the lot. In planting and grouping a family lot, regard must be paid to the adjoining plantation and monuments. The character of the group that will form the background must correspond with the general character of the monument. The contrasting outlines of size and form, of color, light and shade, must reflect on the monument and produce a picturesque and harmonious effect. For instance, the White Birch, the Silver-leaved Maple, or the American Sycamore, as a principal tree in a group in the background would, in regard to color, be of bad effect near a white marble monument. A Norway Spruce, an Austrian Pine, or a Liquid-ambar, would be more appropriate.

Large trees, such as Oaks, Chestnuts, and Linden, ought not to be introduced on small lots, but left to the disposition of the landscape architect of the grounds. Second-class trees, the evergreens and particularly shrubs, are the more suitable plants for moderate sized lots.

Beautifying Country Homes.

PART II.

PLANS OF IMPROVED PLACES.

CONTENTS OF PART II.

PLANS OF IMPROVED PLACES.

The author has prepared, as an accompaniment to the foregoing instructions for laying out grounds, a number of plans representing already executed works of the most eminent landscape architects in the country. These are accompanied by brief descriptions of the grounds and lists of the principal trees and shrubs used in ornamenting them. He considers that a collection of such plans, of work that has actually been done, preferable to any fancy drawings or designs. Those familiar with the art of beautifying grounds are well aware that no design can be so perfect, and no plan can be made so exact, that some deviation from it will not be required as the work progresses.

Those who study the accompanying maps, can rely upon them as being perfect copies of grounds already laid out, and each one of them can be commended as a guide to those who would make improvements in similar situations.

To prevent confusion, the grouping of the trees in the plans is less dense than might otherwise have been represented.

As the generally adopted style of topographical drawing does not allow the vertical expression of the trees and shrubs to be shown, the groups and single specimens have been drawn in perspective. They are, however, considerably reduced in height, in order that the location of each may be the more distinctly shown.

PLATE I.

PLAN OF TWO SUBURBAN RESIDENCES AT ALBANY, N. Y.

In this plan the size of lots is 100×400 feet. The ground around the dwellings has been raised about three feet above the original surface, and two feet above the level of the sidewalk, which gives a sufficient water-shed in every direction from the buildings. The walks and drives form straight grade lines from the entrances to the front doors, and around the house to the side entrances; from here the grade to the rear door descends about twelve inches. At this point the artificial grade meets the original surface of the ground again, and with a rather steep descent leads to the barns and gardens. As the front and side lawns are rather limited in breadth, pains are taken not to mar them in planting and grouping.

REFERENCES.—*A*, Dwellings; *B*, Barns; *C*, Orchards; *D*, Vegetable gardens; *E*, Drying grounds; *F*, Pasture grounds.

The different groups consist of—In the north lot:

1. Austrian Pine, Siberian Arbor Vitæ, Forsythia, Weigela, Barberry.
2. Hemlock, Viscid Azalea.
3. Japan Quince.
4. American Arbor Vitæ, Deciduous Cypress, Flowering Dogwood, Bladder Senna, Oriental Spruce (*Abies orientalis*,) White Persian Lilac.
5. Menzies' Spruce.
6. Group of different Syringas and Spiræas.
7. Stuartia pentagynia, Deutzia gracilis.
8. Different Spiræas, with Cucumber-tree in the centre.
9. American Arbor Vitæ and Hemlocks.
10. English Oak.
11 and 12. Groups of Rose of Sharon of different varieties.
13. Dwarf Pine.
14. Group of Euonymus Japonicus.
15. Oak-leaved Hydrangea.
16. Hemlock, Stone Pine, American Arbor Vitæ, Red-twigged Cornus, Sassafras, White Chinese Lilac. This group conceals the lower part of the barn from the house and lawn.
17. Norway Maple, European Privet, and Winter-berry or Red Alder towards the street, Horse-chestnut, and Red Hawthorn along the drive to the barn.
18. Norway Spruce, Hemlock, Bhotan Pine, Judas-Tree, Cornelian Cherry.
19. Siberian Arbor Vitæ, White Fringe, Japan Quince.

In the south lot:

20. Hemlock, Tartarian Honeysuckle, Holly-leaved Barberry.
21. Catalpa, Siberian Arbor Vitæ, Barberry.
22. Norway Spruce, Stone Pine, White Pine, American Arbor Vitæ, Red-stemmed Dogwood.
23. Catalpa Kæmpferi.
24. Scarlet Hawthorn, Japan Quince, Tamarisk.
25. Syringa Emodi, Vitex arborea, Rose Locust.
26. Yellow Buckeye.
27. Group of Spiræas.
28. Group of Honeysuckles, different varieties. In the rear is a mass-grouping of evergreen and deciduous trees and shrubs.
29. Silver Bell.
30. Beech, American Judas-Tree.
31. Golden Ash.
32. Group of Pines, Hemlocks, Arbor Vitæ, and Osage Orange.
33. White Oak, Flowering Dogwood, Honey Locust.
34. Savin Juniper.

The mass-grouping in the rear of the orchard and vegetable garden is for ornament as well as for protection.

PLATE II.

PLAN OF A COUNTRY HOME NEAR CHICAGO, ILL., THE PROPERTY OF A. E. TAYLOR, Esq.

DESIGNED AND EXECUTED BY E. F. MILLER.

The grounds contain five and a quarter acres, and the large and extensive dwelling-house fronts to the east and stands on a natural elevation, which required no artificial grading.

The highest spot on the ground is a steep little knoll towards the south-west corner, on which a rustic pavilion is built.

The lower ground was chosen for the barn and coach-house, and lies in the extreme north-west corner of the premises, where there is an excellent sewerage in a north-western direction.

REFERENCES.—*A*, Dwelling-house; *B*, Barn and coachman's house; *C*, Drying yard; *D*, Hot-beds; *E*, Rustic pavilion; *F*, Vegetable garden; *G*, Orchard; *H*, Natural rocks in rear of the artificial pond; *J*, *J*, Flower-beds.

Some noble old forest trees on the grounds give the place much dignity. Of the characteristic groups and single specimens the following are the most important:

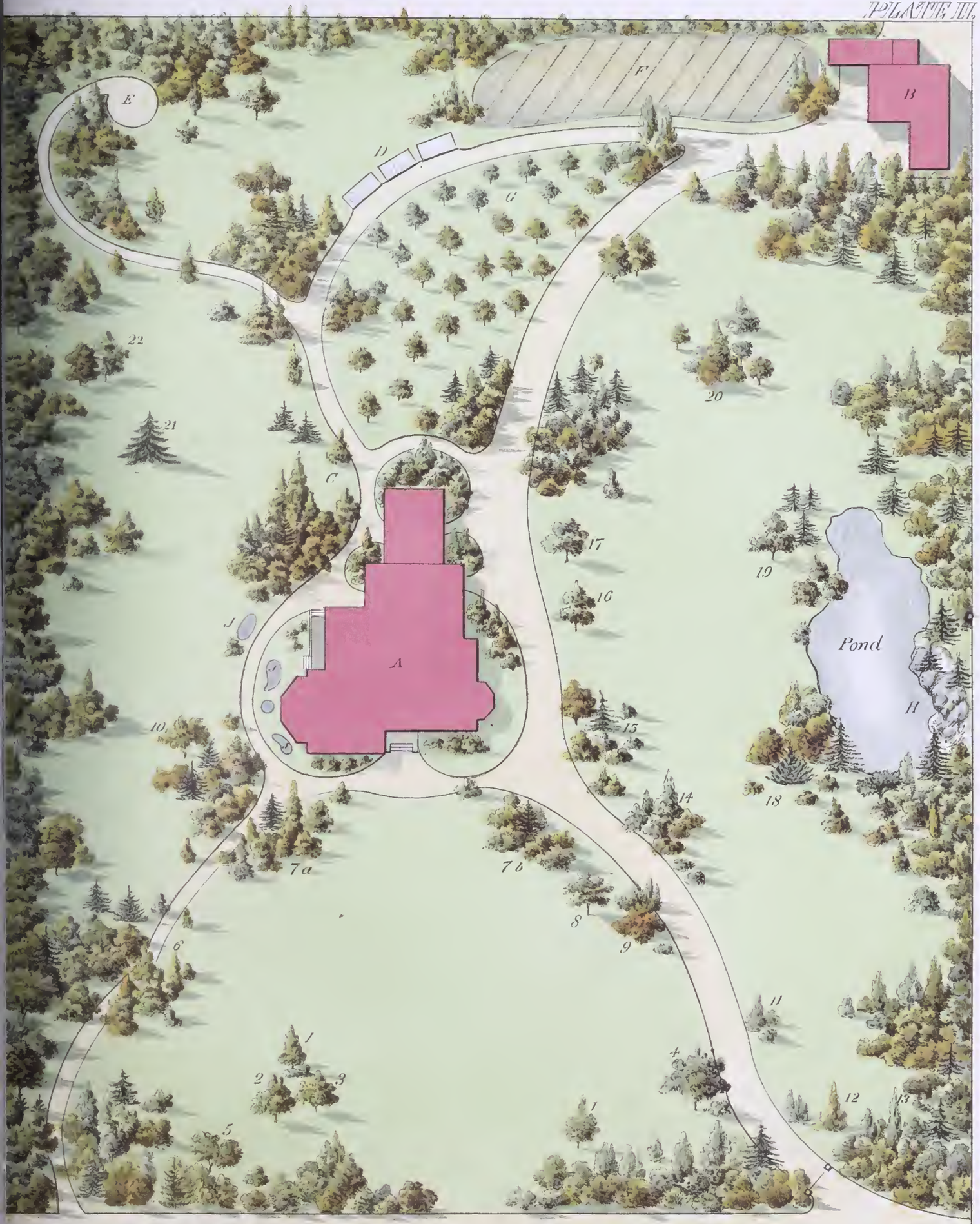
1. Deciduous Cypress.
2. Black Oak.
3. Sugar Maple.
4. European Linden.
5. Yellow-wood (Virgilia).
6. Group of Magnolias.

7*a*. European Larch, American Arbor Vitæ, Hemlock, Golden Arbor Vitæ, Evergreen Thorn, Cotoneaster microphylla.

7*b*. Lawson's Cypress, Rhododendron Catawbiense, Kalmia latifolia.

8. Liquidambar or Sweet Gum.
9. Purple Beech.
10. English Elm.
11. Embossed Cypress.
12. Siberian Silver Fir.
13. Lombardy Poplar.
14. Pyramidal Oak.
15. Menzies' Spruce, Ash-leaved Maple, Judas-Tree.
16. Norway Maple.
17. Turkey Oak.
18. Lambert's Pine.
19. Cucumber-tree.
20. Horsefield's Cypress (*Glyptostrobus Horsfieldii*).
21. Menzies' Spruce.
22. Laurel-leaved Oak, Scarlet Oak.

PLATE III.



10 20 30 40 50 100 150 200 feet.

Metre.

H. BENCKE, LITH. N.Y.

PLATE III.

SUBURBAN RESIDENCE OF E. B. COOLEY, Esq., NEAR BOSTON, MASS.

EXECUTED BY JOHN R. CAMP.

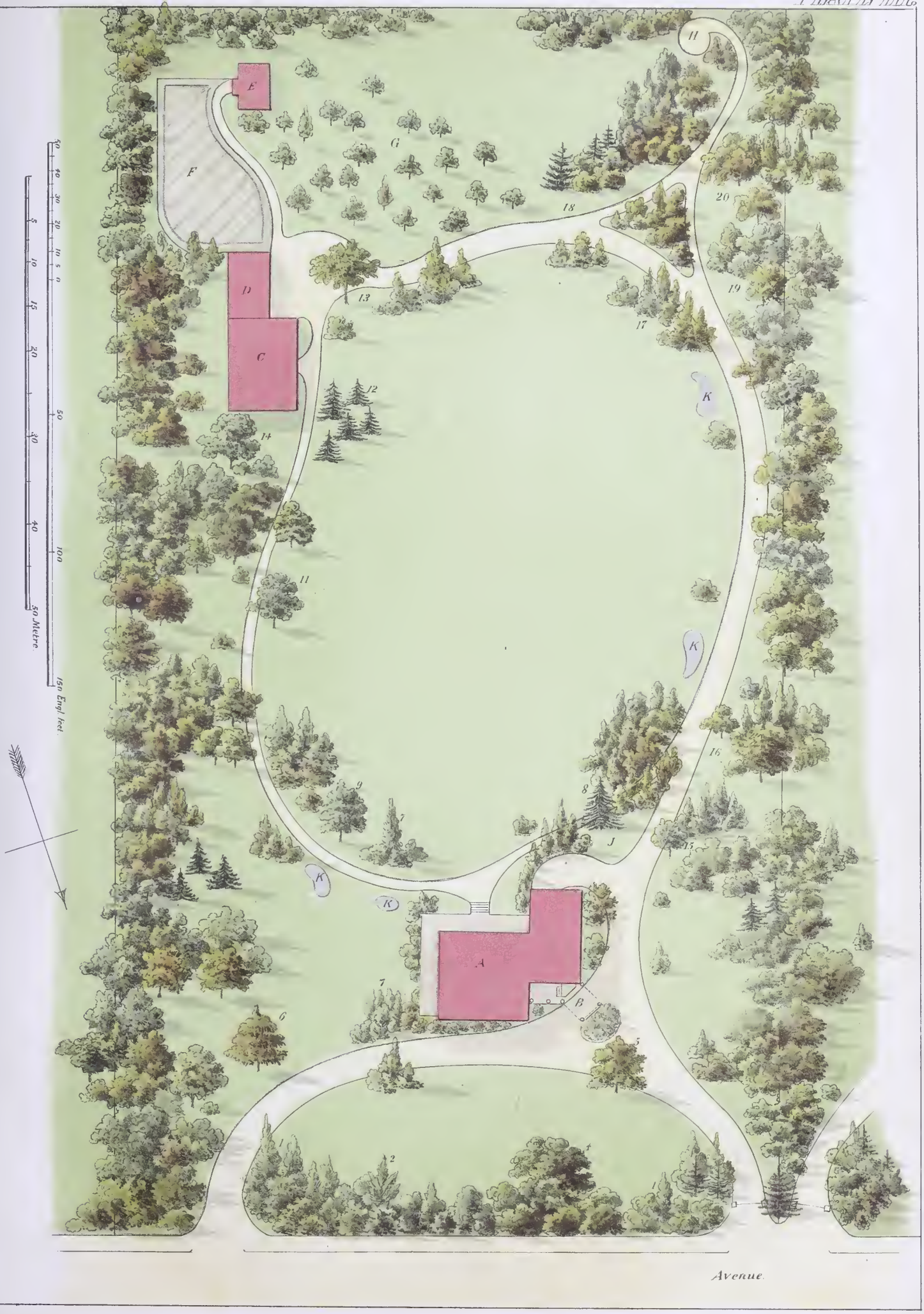
The grounds have an area of three and a half acres, the front and side lawns being almost on a level with the sidewalk and public avenue in front. The main lawn, in the rear of the building and enclosed by a drive, has a gentle slope to the south and south-west, while the remaining portion of the grounds have an undulating surface, giving with their large and full-grown oaks a very picturesque effect when viewed from the veranda of the house, and particularly from the east entrance gate.

In giving the illustration, we were obliged to omit a portion of the rear forest.

REFERENCES.—*A*, Dwelling-house; *B*, Porte cochère; *C*, Barn; *D*, Shed; *E*, Gardener's house; *F*, Vegetable garden; *G*, Orchard; *H*, Kiosk; *I*, Clothes yard; *K*, *K*, Flower-beds. The most striking groups and single specimens are:

1. Yellow-wood (Virgilia .
2. Hemlock, Arbor Vitæ.
3. Austrian Pine, Golden Arbor Vitæ.
4. Catalpa.
5. Tulip-tree.
6. Copper-leaved Beech.
7. Sassafras, Siberian Arbor Vitæ.
8. Black Spruce.
9. Sweet Gum.
10. Norway Maple.
11. Sugar Maple.
12. Group of Stone, Austrian, and Pyrenean Pine.
13. Catalpa.
14. Group of different Maples.
15. Judas-Tree.
16. White Oak, Flowering Dogwood, Embossed Cypress, Deciduous Cypress.
17. Group of Spiræas, Pyrus Japonica, Weigela rosea.
18. European Larch, Norway Spruce, Cornus sanguinea.
19. White Oak.
20. Shell-bark Hickory.

The division line between this and the adjoining property on the right is so arranged as to leave openings for connection and extension of lawns and vistas, which gives a very satisfactory result, as both places are comparatively narrow.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50 Metre.
150 Engl. feet.
Avenue.

PLATE IV.

SUBURBAN RESIDENCE OF HON. GEO. BEACH, HARTFORD, CONN.

This charming place was laid out about twenty years ago by the present proprietor, who has shown excellent judgment and fine taste in the general arrangement, as well as in the disposition and grouping of trees and shrubs.

The grounds comprise an area of three acres, giving a gentle slope of the rear or main lawn to the south, but the extreme south part is undulating and thickly covered with oaks and chestnut trees.

A little artificial pond and brook, supplied by springs, complete the picturesque effect of the whole.

REFERENCES.—*A*, Dwelling; *B*, Barn; *C*, Green-house; *D*, *D*, Flower gardens; *E*, Drying yard. The most attractive trees and groups are:

1. Hemlock.
2. American Arbor Vitæ.
3. Ash-leaved Maple.
4. Catalpa.
5. Tulip-tree.
6. Yellow-wood (Virgilia).
7. European Ash.
8. Norway Maple.
9. Umbrella-tree.
10. Japan Ginkgo.
11. Norway Spruce.
12. Deciduous Cypress.
13. Group of Rhododendron Catawbiense, Broad-leaved Burning Bush (*Euonymus latifolius*).
14. Black Walnut.
15. Cucumber-tree.
16. Kentucky Coffee-tree.
17. Red-twigged Cornus.
18. European Beech.
19. Silver Bell.
20. Sassafras.

A heavy plantation of oaks, chestnuts, and maples, along the west lines, adds greatly to the pleasing appearance of the place.

PLATE IV.

H. BENCKE. LITH. N.Y.

PLATE V.

PUBLIC GREEN, HARTFORD, CONN.

DESIGNED BY J. WEIDENMANN.

This plan is approved by the Park Commissioners and the Common Council of Hartford, Conn., for laying out a public square for recreation and ornamentation in the south part of that city. The irregular-formed place comprises thirteen and a half acres, and represents an almost level sward.

The sidewalks of the enclosing avenues and streets are taken into the Green, leaving a turf-border of ten feet in width between the fence and the walks.

The gravel space around the fountain is intended for a children's play-ground, and will be provided with suitable seats.

The main approach of the junction of the avenues is ornamented with a double seat in circular form, built of granite.

An iron fence and curbstones enclose the Green. Norway and Sugar Maples are planted alternately along the extreme border of the square. A full-grown, stately American Elm stands in the center of gravel space *A*. The different groups consist of:

1. Norway Spruce, Judas-Tree, Flowering Dogwood, Rose of Sharon, Spiræas.
2. Deciduous Cypress, Siberian Arbor Vitæ, Weigela rosea, Purple Barberry.
3. American and Hovey's Arbor Vitæ, Tree Box, Berberis Japonica.
4. Syringas, Stuartia, Forsythia, and Loniceras.
5. Stone Pine, Red-twigged Dogwood, Judas-Tree, Holly-leaved Barberry.
6. Lawson's Cypress, Hawthorn, Cytisus alpinus, Deciduous Cypress, Calycanthus floridus.
7. Stone Pine, Ornus rotundifolia, Tamarisk, Euonymus latifolius, Cotoneaster rotundifolia, Calycanthus macrophyllus.
8. Oriental Spruce, Juniperus glauca, Cornus sanguinea, Diervilla lutea, Lonicera Siberica and Tartarica.
9. Cephalotaxus Fortunii, Berberis Aquifolium, Ligustrum Californicum, Weigela Desboisii.
10. Thuiopsis borealis, Podocarpus Japonica, Cratægus Pyracantha, Berberis Japonica.
11. Dwarf Norway Spruce, Thuja occidentalis compacta, Berberis Japonica, Viburnum Oxycoccus.
12. Taxus erecta, Chimonanthus fragrans, Cornus sericea, Waxy Cornelian Cherry, White Barberry.

PLATE V.

H. BENCKE, LITH. N.Y.

PLATE VI.

SUBURBAN VILLA OF T. M. STANLEY, Esq., NEW BRITAIN, CONN.

DESIGNED AND PARTLY EXECUTED BY J. WEIDENMANN

The residence is upon a steep eastern slope of four acres in area, where there is but little level ground for a dwelling. Most magnificent views are had over the town and the valley south and north.

Before building, extensive digging and filling was required, in order to obtain a suitable and easy access. The slope in the rear of the house had to be terraced, to afford the necessary approach to the kitchen and cellar entrances. A four-foot gravel walk leads from the house in pleasing curves through the orchard and vegetable garden to a pavilion on still higher ground, from which a beautiful view is obtained.

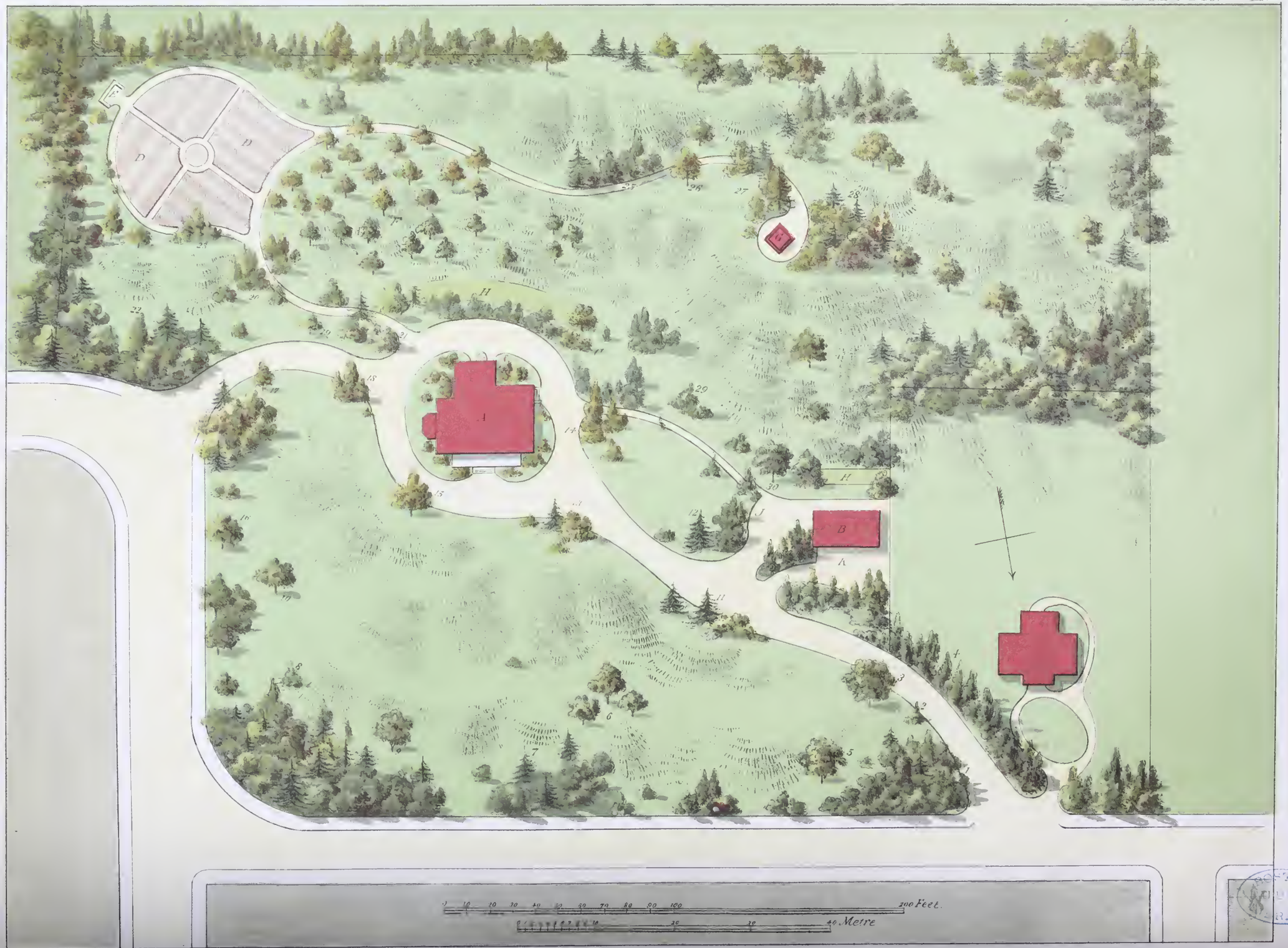
The barn is located about sixty feet from the main approach road; a partly concealed drive leads to a shed and cow-yard, while another leads to the stable and carriage-house with ample room for turning carriages.

A walk communicates between the house and barn. The valuable lot on the right hand of the main entrance was for sound reasons preserved for building purposes, though provision is made for an appropriate and easy entrance to the principal ground.

REFERENCES.—*A*, Dwelling; *B*, Barn; *C*, Drying yard; *D*, Vegetable garden; *E*, Garden house; *F*, Orchard; *G*, Pavilion; *H*, Terraces; *J*, Upper barn-yard; *K*, Lower barn-yard. The different groups consist of:

1. Hemlock, American Arbor Vitæ, Norway Spruce, Flowering and Red Osier Dogwood, Judas Tree, Japan Quince, Rose Locust.
2. Rhodora Canadensis.
3. Yellow Buckeye.
4. Belt of Hemlock.
5. Red Horse-chestnut.
6. Group of European and Purple Beech.
7. Douglas' Spruce towards the house, Menzies' and Norway Spruce towards the fence.
8. Tamarisk, Spiræa callosa, prunifolia, and Reevesii fl. pl., Magnolia conspicua.
9. Tulip-tree.
10. Ash-leaved Maple.
11. Oriental Spruce and Juniperus glauca, Group of Azaleas.
12. Black Spruce, Purple Barberry, Cornus alba, Syringa Emodi, Hemlock, and American Arbor Vitæ.
13. Lawson's Cypress, Hydrangea quercifolia, Dwarf Buckeye.
14. Lombardy Poplar, Rose of Sharon, Norway Maple.
15. Turkey Oak.
16. Norway Maple.
17. Catalpa Kæmpferi.
18. Kalmia latifolia.
19. Rose of Sharon.
20. Flowering Currant of different varieties, Syringa, Norway Spruce, White Ash.
21. Group of Arbor Vitæ, Hemlock, Sassafras, Kœlreuteria.
22. Glyptostrobus, Siberian Arbor Vitæ.
23. Flowering Ash, Sweet Gum.
24. European Larch, Hemlock, Arbor Vitæ.
25. Quercus fastigiata, Robinia viscosa, Podocarpus Japonica.
26. Cucumber-tree.
27. Large group of Flowering Dog-wood, Norway Spruce, Swiss Stone Pine, and Siberian Silver Fir.
28. White Pine (dwarf,) Tree Box, Barberries, etc.
29. Dwarf Buckeye.

PLATE VI.



H. BENCKE, LITH. N.Y.

PLATE VII.

IMPROVEMENTS IN FRONT YARDS OF CITY LOTS.

A SUGGESTION, BY J. WEIDENMANN.

The streets in our cities are greatly disfigured by front fences erected for the intended protection of houses and yards; they are of stone, iron, or wood, and in all patterns and colors; there are almost as many different styles of fences as there are houses, every proprietor making a display according to his taste or means. The gates, as they remain open day and night, give no security or protection. The divisions are generally cheap high board or picket fences, intended to conceal the view of the few square feet of green sward from the neighbors' windows.

The proposed improvements consist of a coping, as described on page 38, along the whole line of the street, dividing the public sidewalks from the lots. Ornamental and neatly cut stone posts are placed at the corners of each lot, and also at the entrances.

At convenient points between the buildings and parallel with the copings in front, a tight board or picket fence may be erected, with gates opening to the rear of the house and lot, leaving the whole front lawn undivided and open for planting and grouping, while the rear can be effectually concealed.

By this improvement, the grass border of ten or fifteen feet in width between the house and the division line, will grow into a handsome little lawn with flower-beds, shrubs, and shade trees.

The actual cost of improving front yards in this way is much less than by the present method, and the proprietor will derive more satisfaction and pleasure from it. The grouping may be done in the following manner:

1. Caragana arboreseens.
2. Berberis Japonica.
3. Group of Deutzia gracilis and Deutzia scabra.
4. Persian Yellow Rose.
5. Weigela rosea.
6. Calycanthus floridus.
7. Austrian Pine.
8 and 9. Pyrus Japonica.
10. Hawthorn.
11. Catalpa.
12. White Fringe Tree
13. Cytisus incarnatus.
14. Siberian Arbor Vitæ.
15. Stuartia pentagynia.
16. Golden Arbor Vitæ.
17. Rhodora Canadensis.
18. Norway Maple.
19. Dwarf Pine.
20. Group of Roses.
21. Norway Spruce, in front Berberis Japonica, and Rhododendron Catawbiense.
22. Lonicera Tartarica alba.
23. Dwarf Buckeye.
24. Salix caprea tricolor.
25. Forsythia viridissima.
26. Spiræa callosa.
27. Tamarix gallica.
28. Podocarpus Japonica.
29. Group of Verbenas.
30. Umbrella Magnolia.
31. Group of Cannas and Arundos.
32. Juniperus glauca.
33. Rose of Sharon.
34. Yellow-wood (Virgilia).
35 and 36. Siberian Arbor Vitæ.
37. Rose Locust.
38. Cucumber Magnolia.
39. Hydrangea quercifolia.
40. Hydrangea Hortensia.

PLATE III.
H. BENCKE, LITH N.Y.
100 Feet
40 Metre.
BOSTON PUBLIC LIBRARY

PLATE VIII.

COUNTRY HOME IN THE VICINITY OF CINCINNATI, OHIO.

DESIGNED AND EXECUTED BY J. WEIDENMANN.

The map represents a double lot, having an area of ten acres, with undivided pleasure grounds, a barn-yard in common, and a barn-drive. Both dwelling-houses stand on somewhat elevated ground; the center lawn between them is artificially raised to an easy swell of about two feet in the center, which gives the appearance of an almost level lawn. There was originally quite a hollow where the lawn now is, which was filled up to its present grade with the soil excavated from the cellars of the buildings.

The general lay of the land falls to the north side, on which the barns are located, with a descent of about five feet in the hundred.

The only remarkable distant view from the ground is in a southern direction, but the general aspect of the landscape is very pleasing.

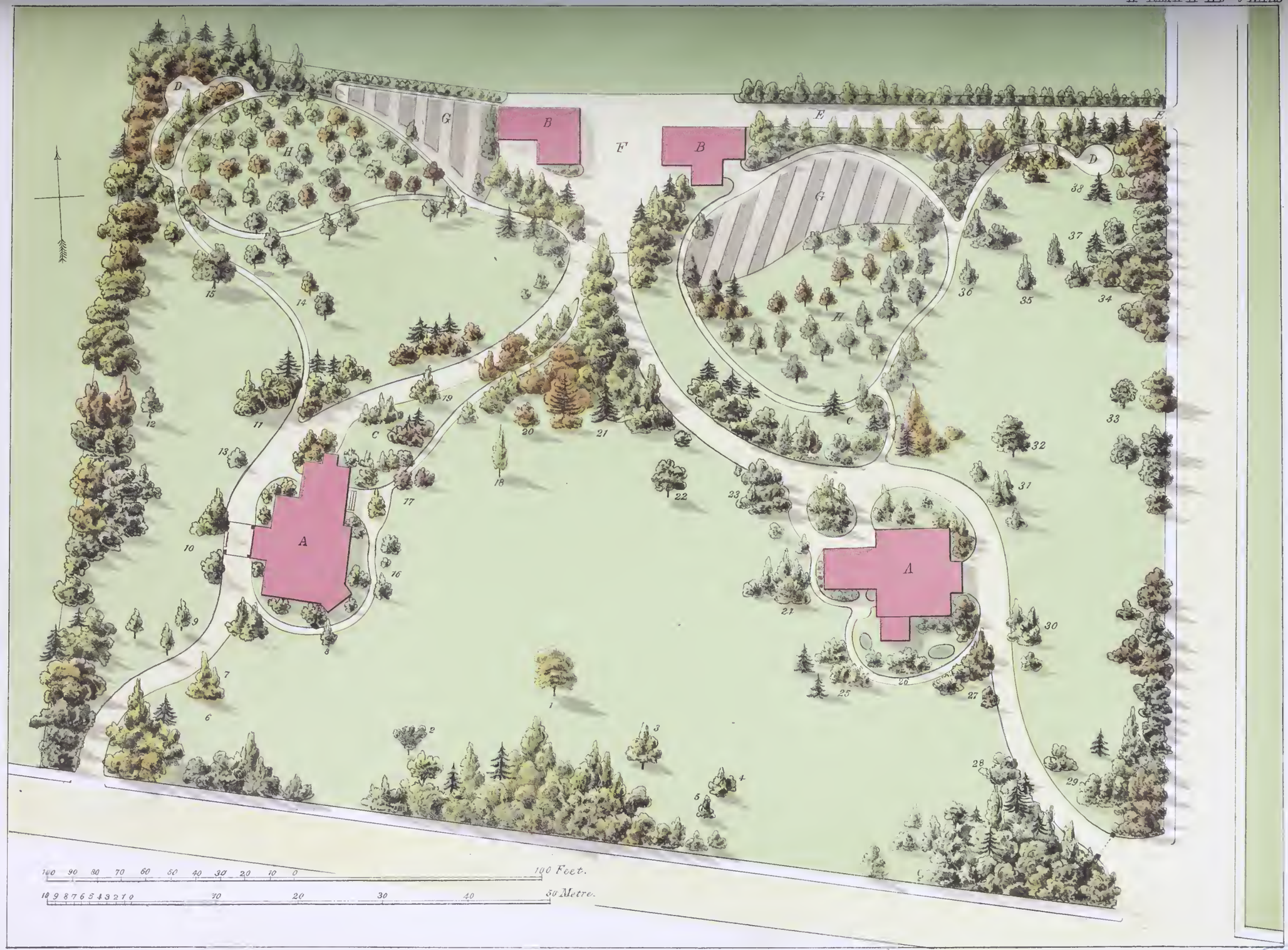
The benefit of a barn-yard and drive for the joint use of both is highly valued by the proprietors, as the spot which is usually more or less a nuisance in the landscape, is here made as small as possible and is perfectly concealed.

A strong wire fence and gate prevent cattle from passing into the pleasure ground and garden.

References.—*A*, Dwelling-houses; *B*, Barns; *C*, Drying yards; *D*, Rustic garden houses on artificial knolls from which there is a charming view over the grounds; *E*, Barn-drive; *F*, Barn-yard; *G*, Vegetable gardens; *H*, Orchards.

Some of the most remarkable trees and shrubs are:

1. American Elm—an old landmark of extraordinary beauty, which stands on the division line of the two lots.
2. Yellow-wood (Virgilia).
3. Purple Beech.
4. Chionanthus.
5. Diervilla lutea.
6. Deutzia crenata.
7. Cypress.
8. Swedish Juniper.
9. Quercus fastigiata.
10. Hawthorn.
11. Judas Tree, Arbor Vitæ, Norway Spruce, Balsam Fir, American Mountain Ash, Silver Bell, Cornus alba.
12. Ash-leaved Maple.
13. Magnolia conspicua.
14. Cut-leaved Maple, Striped Maple.
15. White Oak—an old and fine shaped tree.
16. Magnolia purpurea, var. gracilis.
17. American Larch.
18. Acer fastigiatum.
19. Group of Flowering Almond.
20. Rhus Cotinus, or Smoke-tree.
21. Menzies' Spruce.
22. Kœlreuteria.
23. Paulownia imperialis, Dwarf Buckeye, Pyrus Japonica, double red.
24. Group of different Arbor Vitæs.
25. Nordmann's Fir, Prunus Sinensis, Euonymus latifolius.
26. Group of Kalmia latifolia.
27. Group of Calycanthus floridus, Calycanthus longifolius.
28. Deciduous Cypress in front of mass-grouping of deciduous and evergreen trees and shrubs.
29. Fastigiate Cypress.
30. Group of different varieties of Thorns.
31. Siberian Silver Fir.
32. Horse-chestnut.
33. Catalpa.
34. Scotch Laburnum in front of mass-grouping.
35. Quercus fastigiata.
36. Hydrangea quercifolia.
37. Swiss Stone Pine.
38. Norway Spruce.



H. BENCKE, LITH. N.Y.

PLATE IX.

PUBLIC PARK, HARTFORD, CONN.

DESIGNED AND EXECUTED BY J. WEIDENMANN.

The annexed map represents the City Park of Hartford, Conn., which comprises thirty-nine acres. It is centrally located in the midst of the city, and bounded on three sides by a small river. It is the principal resort of the citizens for recreation, amusement, and open-air concerts.

The grounds when first begun were to a large extent a swamp and settled with rude shanties—an unhealthy, desolate place.

The first design, made by a surveyor, was partly carried out, when the general dissatisfaction with the arrangement and the incompetency of its managers to lay out such grounds demanded the organization of a Board of Park Commissioners, which board adopted the present new plan. The expenses for remodeling have been heavy.

The drainage of the grounds having been entirely neglected, this work was first systematically laid out and a map of all drains and underground and surface water was preserved. Expensive alterations on the east and west park, the correction of the river, the building of bridges, the construction of roads and walks, the grading, filling, and planting, progressed as the financial appropriations made by the City Council would allow.

The main portion of the park is undulating, a condition produced by artificial means. It is about ten feet above the level of the river, though the south-west part is a natural hill about sixty feet high, from which a pretty view can be obtained.

The following are the most prominent single specimens:

1 and 13. White Oaks, which are seedlings from the famous Charter Oak, of Hartford, and presented to the Park Commissioners.
2 and 20, are large and fine shaped American Elms.
3. Deciduous Cypress.
4. European Beech.
5 and 11. Turkey Oak.
6. Catalpa syringifolia.
7 and 8. White Birch.
9. English Oak.
10. Laurel-leaved Oak.
12. Liquidambar or Sweet Gum.
14. Lombardy Poplar.
15. Glyptostrobus Sinensis, the Embossed Cypress.
16. European Linden.
17. Black Sugar Maple.
18. Quercus fastigiata.
19. Magnolia tripetala.
21. Group of Norway Spruce, Hemlock, and Deciduous Cypress in the rear of a mass-grouping of flowering shrubs.
22, 23, 24, and 25. Large mass-grouping of flowering shrubs.
26. Austrian Pine, Swiss Stone Pine, and Corsican Pine.
27. Group of Hemlock, with Cucumber Magnolia in front.
28. Podocarpus Japonica, Quercus fastigiata, Judas Tree, American Beech.
29. Menzies' Spruce.
30. Catalpa.
31. Sugar Maple.

REFERENCES.—*A*, Stone terrace; *B*, Statue of Rev. Horace Bushnell, D.D., the founder of the Park; *C*, Wooden foot-bridge; *D*, Iron foot-bridge; *E*, Stone bridge; *F*, Stone dam and cascade; *G*, Western bridge with sidewalks; *H*, Gate and drive connecting with Trinity College ground.

PLATE IX.


WEST ST
TRINITY ST.
ELM STREET
MALL
CONCOURSE
DRIVE
DRIVE
DRIVE
PARK RIVER
Trumbull St.
A
B
C
D
E
F
H
H.N.H.R.R.
500 Feet
200 Metre

PLATE X.

COUNTRY SEAT NEAR PHILADELPHIA, PA.

DESIGNED AND EXECUTED BY M. PERRY.

The ground, an area of six acres, on which this plan is carried out, was admirably well adapted for it.

Besides the laying out of roads and walks, no great amount of grading was required.

The land has a slight descent to the north-west, forming a depression in the south-east corner as far as the vegetable garden extends. From here a main pipe carries off the surface water in a northwesterly direction through the orchard and north lawn, and receives the waste water from the well, the green-house, and the stable.

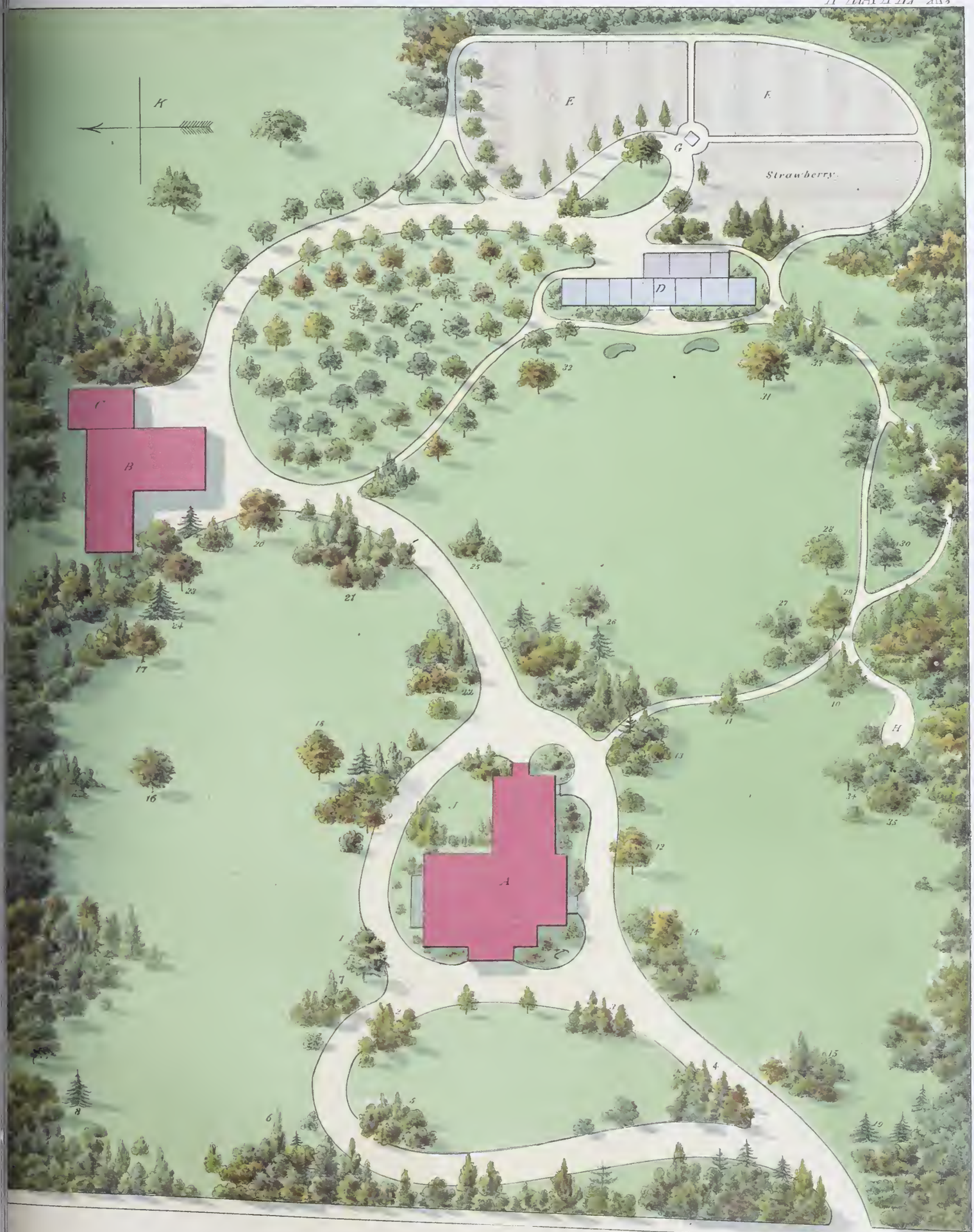
A separate sewer is laid from the dwelling-house in the same direction, and unites with the main drain near the public road. An outlet is found in a little brook opposite. There are fine distant views to the north and south, but the one directly to the west surpasses all the others. The ground was remodeled several times, and additional drives and walks laid out to suit the taste of the present proprietor. The lawns and gardens are kept in excellent order, at an annual expense, it is said, of $1,000, including the care of the green-house.

REFERENCES.—*A*, Dwelling; *B*, Barn; *C*, Gardener's and coachman's house; *D*, Green-house; *E*, Vegetable garden; *F*, Orchard; *G*, Well; *H*, Rustic seat and Kiosk; *J*, Drying yard; *K*, Pasture ground.

The following are the most noticeable trees and shrubs on the lawn:

1. European Linden.
2. Paulownia imperialis.
3. Magnolia glauca and Magnolia macrophylla.
4. Retinispora ericoides, Juniperus oblonga pendula, Thuja Hoveyii, Berberis Japonica.
5. Weeping Yew (*Taxus baccata*, var. *Dovastoni*,) Arbor Vitæ var. compacta, Dwarf Pine, and Kalmia angustifolia.
6. Deciduous Cypress towards the lawn and in front of a group of Pines, Dogwoods, Silver Bells, Hawthorn, etc.
7. Pyrus fastigiata, Stuartia pentagynia, Weigela.
8. Cephalotaxus Fortunii.
9. Group of Service Berry (*Amelanchier*,) Judas Tree, Cornus alba, Spiræas of different varieties, and Norway Spruce.
10. Oriental Spruce.
11. White Fringe-tree.
12. European Beech.
13. Group of Rose Locust, Sophora Japonica, Scarlet Thorn, Arbor Vitæ.
14. Yellow-wood, Flowering Almond, Indigofera, Rhodora Canadensis, Flowering Plum, Spiræa prunifolia fl. pl., Deutzia crenata, D. scabra, and D. gracilis.
15. Deciduous Cypress, Pyrus Japonica, Lonicera Tartarica, Daphne Mezereum.
16. English Oak.
17. Liquidambar.
18. Golden Ash.
19. Douglas' Spruce.
20. Sugar Maple.
21. Group of Balsam Poplar, Pyrus fastigiata, Snowball, Privet, Berberis aquifolia.
22. Siberian Silver Fir, Fastigiate Cypress, Cornelian Cherry, Elœagnus argentea, Azalea Pontica.
23. Glyptostrobus Sinensis.
24. Norway Spruce.
25. Chimonanthus fragrans.
26. Horse-chestnut.
27. Striped Maple.
28. Norway Maple.
29. Catalpa.
30. Tulip-tree.
31. Sugar Maple.
32. White Birch.
33. Acer fastigiatum, Cotoneaster rotundifolia, Spiræa callosa.
34. Magnolia conspicua.
35. Hydrangea quercifolia.

PLATE X.



H. BENCKE, LITH. N.Y.

PLATE XI.

SUBURBAN RESIDENCE OF JAMES L. HOWARD, Esq., HARTFORD, CONN.

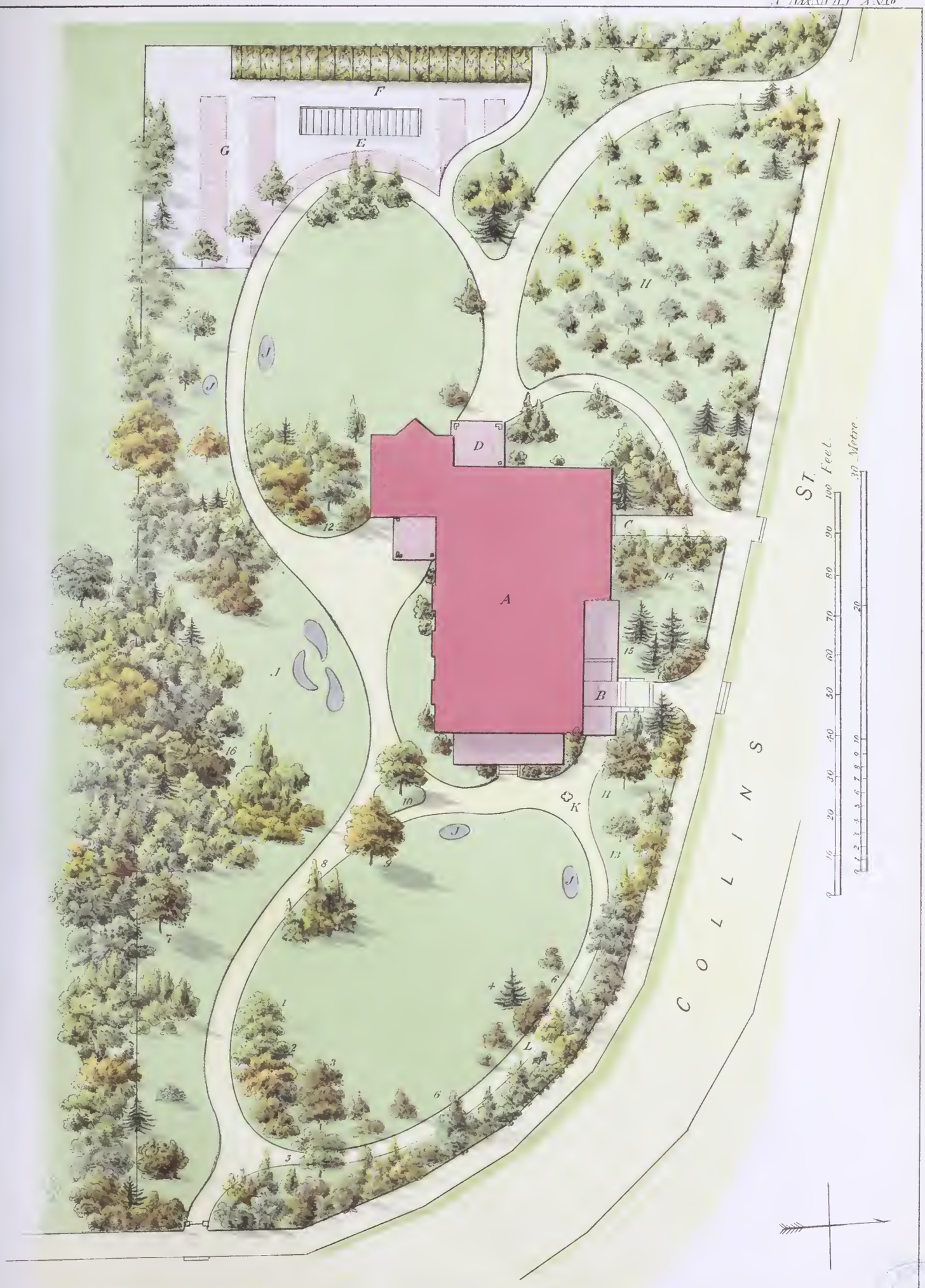
DESIGNED AND EXECUTED BY J. WEIDENMANN.

The irregular shaped lot of an acre and a half on which this fine and comfortable residence is built lies on high ground, with unobstructed distant views to the east, north, and west. An abrupt descent on the opposite side of the street opens from east to west a deep but narrow valley. As the shape of the whole tract of land was not in the least appropriate for the intended improvements, extensive digging and filling were required, and scarcely a foot of ground remains in its original position. Although but fifteen feet from the street, the greatest difficulty was found in obtaining proper access to the different entrances of the dwelling. The general formation of the land required the house to stand about eight feet above the street grade; for this reason the sidewalk opposite the main entrance was raised three feet six inches, and as it happened that the street just at this point was depressed for about two feet, the new grade of the sidewalk fell almost upon a level with the two termination points, at the south and west corners of the property. A tasteful arrangement of stone steps and handsome copings leads from the so elevated sidewalk on the left hand to the main entrance of the house. The entrance *C* leads to the cellar door and the walk adjoining to the rear and kitchen department.

References.—*A*, Dwelling; *B*, Main entrance; *C*, Basement and cellar entrance; *D*, Porch; *E*, Hot-beds; *F*, Grape-vine arbor; *G*, Vegetable garden; *H*, Orchard; *J*, Flower-beds; *K*, Rustic flower-beds; *L*. Rustic seat. The most conspicuous trees and shrubs are:

1. Cucumber Magnolia.
2. Double-flowering Cherry.
3. Magnolia tripetala.
4. Austrian Pine.
5. Tulip-tree.
6. Norway Maple.
7. European Beech.
8. Deciduous Cypress.
9. Liquidambar, or Sweet Gum.
10. Horse-chestnut.
11. Black Sugar Maple.
12. Magnolia tripetala.
13. Glyptostrobus Sinensis.
14. Group of Hydrangea Hortensia.
15. Norway Spruce.
16. White Ash.

PLATE XII.



H BENCKE, LITH. N.Y.

PLATE XII.

CITY HOME OF R. DOWNS, Esq., BROOKLYN, N. Y.

DESIGNED AND EXECUTED BY W. L. FISCHER.

The owners of many of our private residences have no especial summer resort, or are compelled by business to remain in the city the greater portion of the year. The true lover of nature, as in this case, sacrifices the valuable land around his residence for the sake of having a handsome, well-kept lawn, where he can breathe pure air under the shade of fragrant flowering trees and shrubs, or enjoy the cultivation of flowers and fruits on even a limited piece of ground. Mr. Wm. L. Fischer, who designed and executed the present map, gives us the following description:

The size of the lot is 140 × 350 feet. To accommodate a circular drive close to the door-step, but chiefly for a view from the front line on a pretty little foreground, the house was set back fifty feet from the front line.

A drive of ten feet in width leads on the right to the rear of the building and stable, forming a convenient turn for carriages or heavy teams. A gate connects the barn-yard with the adjoining street on the south. East of the barn a small vegetable garden is laid out, planted with fruit trees along the center walk, while blackberries, hazel-nuts, quinces, and gooseberries are cultivated along the walks at the sides.

In the barn-yard, which is partly used for a chicken-yard, some cherry, apple, and peach trees are planted. The most prominent plants on the lawn are:

1. Magnolia glauca.
2, 3, and 4. Yucca filamentosa.
5. Deutzia crenata fl. pl.
6. Eleagnus argenteus, Philadelphus grandiflorus, Ptelea trifoliata, Spiræa callosa.
7. Weigela amabilis, Deutzia crenata, Lonicera fragrantissima.
8. Hydrangea Hortensia, Berberis Aquifolium, Thuja ericoides.
9. Amorpha fruticosa, Robinia viscosa, Syringa vulgaris, Ptelea trifoliata, Spiræa opulifolia.
10. Berberis vulgaris, Symphoricarpus racemosus, Philadelphus coronarius, Spiræa Douglasii, Sambucus nigra, fol. aurea variegata.
11. Cercis Canadensis, Weigela rosea, Spiræa prunifolia fl. pl., Viburnum Opulus, Tamarix Africana, Hibiscus Syriacus.
12. Euonymus Europæus, Spiræa opulifolia, Ligustrum Californicum, Spiræa crenata.
13. Acacia Julibrissin, Kerria Japonica, Spiræa Reevesiana, Prunus Sinensis, Symphoricarpus vulgaris.
14. Groups of bedding plants, such as Salvias, Geraniums, Heliotropes, Monthly Roses, Gladioluses, Tuberoses, Dahlias, Verbenas, etc., with a few plants of ornamental foliage, such as Caladium esculentum, and other effective plants, such as Gynerium argenteum and Tritoma Uvaria, in front of the groups.
15. Deutzia gracilis, Spiræa Reevesiana fl.pl., Spiræa Nobleana.
16. Hemlock, Thuja Siberica and occidentalis, Spiræa Reevesiana and crenata.
17. Paulownia imperialis, Ribes aureum, Broussonetia papyrifera, Deutzia scabra, Spiræa Billardi.
18. Aralia spinosa, Hydrangea quercifolia.
19. Calycanthus floridus, Syringa vulgaris and Persica, Callicarpa Americana.
20. Cornus alba, Colutea arborescens, Forsythia viridissima and suspensa.
21. Pinus Strobus, sylvestris and Austriaca, Abies excelsa, Rosa setigera, Spiræa collosa.
22. Abies excelsa, Thuja Siberica, Retinispora ericoides, Thujopsis borealis, Spiræa salicifolia.
23. Lonicera Tartarica, Cratægus Pyracantha, Rubus odoratus, Hydrangea arborescens and nivea, Spiræa ulmifolia.
24. Kœlreuteria paniculata, Salix laurifolia, Vitex arborescens, Spiræa sorbifolia and Thunbergi.
25. Cydonia Japonica.
26. Rhus Cotinus, Cratægus Crus-galli, Salix rosmarinifolia, Rosa setigera, Hyperienm Kalmianum, Jasminum officinale, Pinus excelsa.
27. Quinces, Hazelnuts, Blackberries, Gooseberries and Currants.

H. BENCKE, LITH. N.Y.

PLATE XIII.

A COUNTRY RESIDENCE AT NEWPORT, R. I.

DESIGNED AND PARTLY EXECUTED BY EUGENE A. BAUMANN.

Close to the shore of the Atlantic Ocean lies the exceedingly fine residence of F. L. Barieda, Esq. Grand and imposing in its location, the costly building stands in the midst of a beautiful park, raised to a level about 14 feet above the sea, the grounds including an area of five acres.

The terraces around the mansion and the parterre between them and the sea are very happy combinations of the natural and the artificial style of landscape gardening, and reflect great credit upon the excellent taste of Mr. Eugene A. Baumann, the landscape artist who designed and partly superintended the laying out of the grounds, and Mr. Calvert Vaux, the eminent architect of this princely residence.

The sea-front is enclosed and decorated by a handsome stone balustrade, while between this and the building on both sides of the parterre is placed a row of elegant flower vases, which produces a highly satisfactory effect. The semicircular graveled place in front of the house is also richly ornamented with Venetian candelabras, which tastefully connect the grounds with the building.

EXPLANATION OF FIGURES.—*A*, Dwelling; *B*, Conservatory; *C*, Terrace; *D*, Entrance to the offices; *E*, Parterre; *F*, Flower-garden; *G*, Gate-lodge; *H*, Green-house; *J*, Stables; *K*, Rear approach. The most prominent trees and shrubs are:

1. Hemlocks and Purple Beech.
2. Norway Maple.
3. Sycamore Maple.
4. Ash-leaved and White Maples, Bird Cherry.
5. English Beech.
6. Colutea, False Indigo and other shrubs.
7. Turkey Oak.
8. Spiræas of different species.
9. English Oak.
10. Dwarf Juniper, Smoke-tree, Winter-berry, etc.
11. Horse-chestnut.
12. Austrian Pine.
13. Scotch Larch.
14. Purple Beech.
15. Weigela rosea, Barberry, Philadelphus and other shrubs.
16. Forsythias, Dogwood, Weigela, etc.
17. English Silver-Firs.
18. English Elm, Turkey Oak, European Beech, Scarlet Maple, Catalpa.
19. Norway Maples, Balsam Poplar, Sycamore Maple, Plum-leaved Willow.
20. Austrian Pine, European Larch, European Silver Fir.
21, 22, 23, 24. A dense belt of deciduous and evergreen trees.
25, 26, 27, 28. Collections of shrubs of various sorts.
29. Purple Beech.
30. Japan Gingko.
31. European Hollies.
32. Prostrate Junipers.
33. European Hollies.
34. Chinese Arbor Vitæ.
35, 36. Collections of shrubs.
37, 38. Screens of evergreen and deciduous trees, to hide the rear approach.
39. European Larch, Hemlocks, Austrian Pine and European Silver Fir.
40. European Hornbeam, Scarlet Maples, Scotch Elms and Norway Spruce.
41. Shrubs of various kinds.
42. Tulip Trees.
43. Witch Hazle, Japan Quince, Mahonias, Purple Beech.
44. Smoke-tree.
45. Dwarf Juniper.
46. Shrubs in variety.
47. Flowering Thorn
48. English Oak.
49. Austrian Pines.
50, 51. Collections of shrubs.
52. European Silver Fir.
53, 54. Collections of shrubs.
55, 56, 57, 58, 59. A belt of evergreen and deciduous trees.

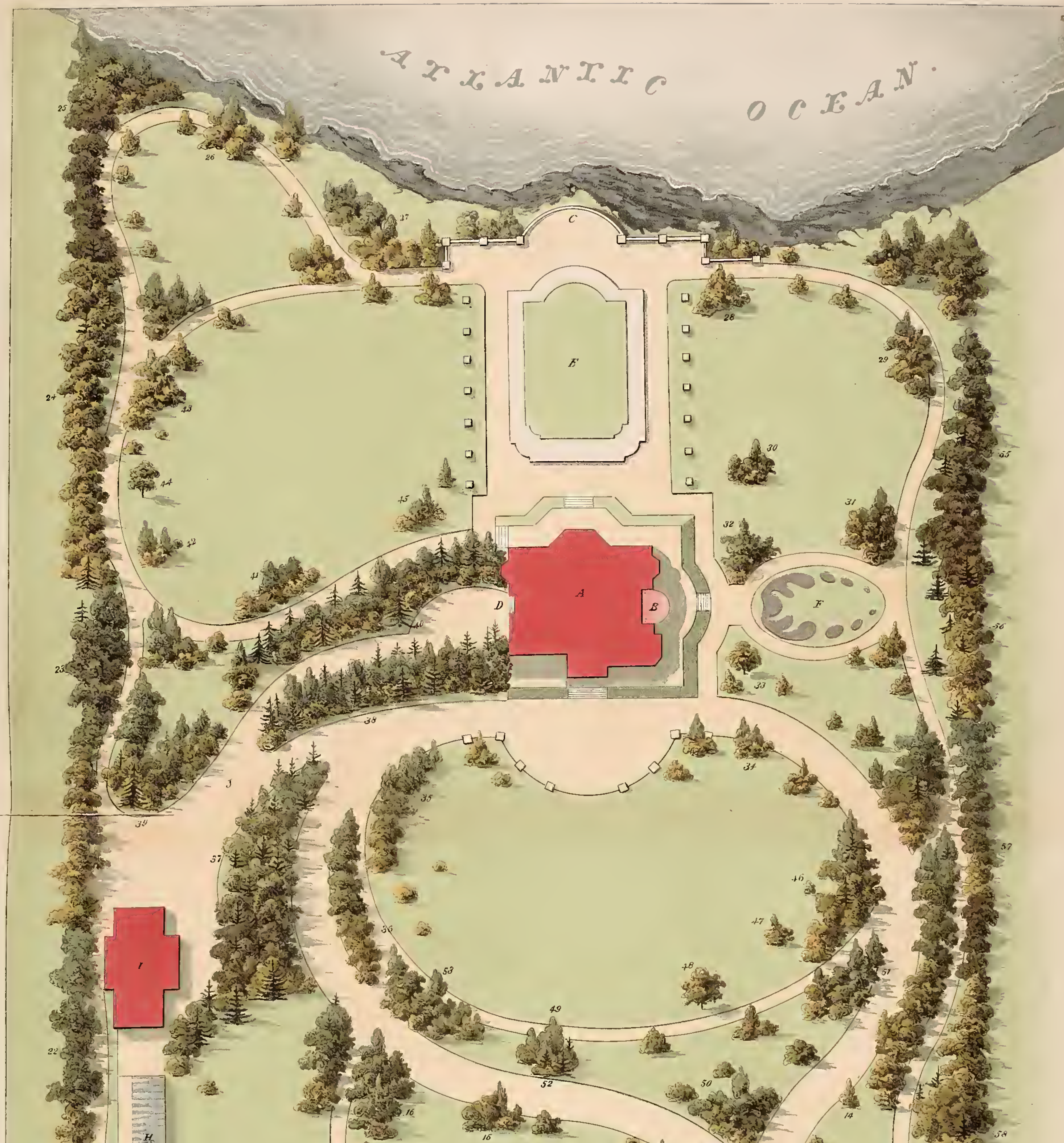

ATLANTIC OCEAN
A
B
C
D
E
F
H
I
J

PLATE XIV.

RESIDENCE OF URIAH HILL, Jr., Esq., PEEKSKILL, WESTCHESTER CO., N. Y.

DESIGNED BY EUGENE A. BAUMANN.

This plan unites the features of a country seat of moderate size with those of a suburban residence. The general slope of the land is from the north to a line on the south side, where the farm-road, barn-yard, and farm buildings are located.

A less visible slope exists from Washington street towards the west side. To overcome this difference, it was suggested to level and grade the immediate surroundings of the house, and form the terrace marked on the plan, which will give the building a more extended base and hide the inequalities of the land, which could not have been obliterated if carried exactly to the more architectural lines of the building.

A building in the mere cottage style may do to have the water-table or first floor on one corner one foot, and another corner three and four feet from the ground; but with a regular farm-house, such as is generally built in similar situations, it would not do, as the walks, if not well leveled, would never keep in good order under heavy rains, or would require more work to keep them in order than the owner would care to devote to them.

It will be noticed that the two main entrances are calculated to leave the front of the dwelling entirely private, and that the planting is arranged in a way to show exclusively the surroundings of the house intended for a pleasure ground.

As a terminus of the place on the west side there is a very large rock, surrounded by some fine native trees; to improve this, a small rustic summer-house was suggested, from which the view extends towards the river; this encloses the main lawn, which may serve very well as a play-ground.

Upon the top of the terrace are beds for ornamental planting, and a few upright trees of low growth. The terrace is to be surrounded by a low iron railing, upon which various ornamental vines may be trained.

The principal planting is as follows:

1. Group of Hemlocks, and Arbor Vitæ.
2. Along Washington Street, Japan Quince, with Weigela rosea towards the house.
3. Silver-leaved Maples.
4. Mass of Arbor Vitæs and Mahonia.
5. Bhotan Pine.
6. American Elms.
7. California Privets.
8. Irish Junipers.
9. English or Royal Oaks.
10. Abies Pinsapo.
11. Callicarpa Americana.
12. Austrian and White Pines and Hemlocks.
13. Mass of Shrubs, including Burning Bush, Mock Orange, and Deutzias.
14. Double-flowering White Hawthorn.
15. Berberis (Mahonia) Aquifolium.
16. Forsythia viridissima. The shrubbery near the boundary consists of Lilac, Hop-tree and Snow-balls, with Trailing Junipers.
17. Magnolia purpurea.
18. Magnolia conspiena.
19. Thuiopsis borealis.
20. Enonymus Japonicus.
21. Tree Boxes.
22. White-fringe Tree.
23. Cratægus Pyracantha.
24. Abies Pinsapo and Irish Yew.
25. Spiræa Fortunii.
26. Magnolia glauca.
27. Group of Remontant Roses surrounded by a border of Irish Ivy.
28. Double-flowering Spiræa prunifolia.
29. Kilmarnock Willow.
30. Juniperus squamata.
31. Group of Prunus Sinensis, P. triloba, Hydrangea Hortensia and Hypericum Kalmianum.
32. Norway Spruce.
33. Norway Spruces, Thuja Sibirica and globosa, Irish Juniper and flowering shrubs.
34. European Sycamore Maples surrounded by Persian Lilacs.
35. California Privet, Hydrangea arborea, Cornus sanguinea, and Spiræa Douglasii.
36. American Elms.
37. European Silver-Firs and Trailing Junipers.
38. Silver Bell.
39. Hemlocks.
40. Judas-trees.
41. Irish and Swedish Junipers.
42. Groups of Smoke Tree, Philadelphus, Pyrus Japonica and other shrubs.
43. Norway Spruces, Siberian and American Arbor Vitæs and Hemlocks, with Virginia Creeper, Ivy, Honeysuckles and other vines around the rocks.
44. Juniperus prostrata.

Barn

Stable

Ice-House

House

H. BENCKE LITH. N.Y.

PLATE XV.

COUNTRY HOMES NEAR NEWPORT, RHODE ISLAND.

DESIGNED AND LAID OUT BY MICH BUTLER.

The handsome country seats of Messrs. Alexander Van Rensselaer and Hamilton Hoppin at Newport, afford an excellent illustration of the principles upon which undivided pleasure-grounds are constructed. The area of the land is ten acres, with a front of about 600 feet on Beachview Avenue. The somewhat undulating grounds are almost entirely devoted to ornamental purposes. Although absolutely separate in their arrangements and disposition, the two together represent, from whatever point viewed, an extensive and handsome park, which will be still handsomer when the young trees have attained their full growth.

The principal division between the residences consists of a dense group of evergreens and deciduous shrubs, which is so arranged that the view of the full extent of the lawns, from either building, is unobstructed, yet the latter are hidden from each other. The drives are satisfactorily arranged; but we question the utility and taste of laying out walks to such an extent parallel with the boundaries, where in the absence of variety at every step, the same unchanged picture lies before the eye. In connection with a large green-house, grounds have been preserved in the rear of Mr. Hoppin's lot for a vegetable garden, while Mr. Rensselaer has devoted the entire area of his land to lawns and ornamental plantation.

Explanation of Figures.—*A*, Dwellings; *B*, Barns; *C*, Drying yard; *D*, Green-house; *E*, Gardener's house; *F*, Vegetable garden; *G*, Well. The principal trees and shrubs are:

1. Norway Spruce.
2. Turkey Oak.
3. Austrian Pine.
4. Magnolia glauca.
5 and 6. Scarlet Oak.
7. Magnolia conspicua.
8. European Larch.
9. White Birch.
10. Group of plants with ornamental foliage.
11. Red Buckeye.
12. Norway Maple.
13. Golden-chain Laburnum.
14. Sugar Maple.
15. Flower-beds.
16. American Larch.
17. Horse-chestnut.
18 and 19. Groups of Pines and Spruces.
20. Austrian Pine.
21. Groups of Shrubs, Dwarf Pine.
22 and 23. Oaks.
24. Maple.
25. American Larch.
26. Norway Spruce.
27. Swiss Stone Pine.
28. Oak.
29. Beech.
30. White Birch.
31. European Larch.
32. Shell-bark Hickory.
33. Black Spruce.
34 and 35. Groups of Flower-beds and Rustic Vases.
36. Beech.
37. Austrian Pine.
38. Group of different Pines.
39. Group of Beeches.
40. Mass group of Pines, Spruces, Hemlocks, Dog-wood, Maples, and Ash.
41. Group of Pines.
42. Norway Maple.
43. White Oak.

100 90 80 70 60 50 40 30 20 10 0 100

0 10 20 30 40 50 60

F F

C

B

Drying Yard.

D D D D

E

G

A

G

A

BEACHVIEW AVENUE.

BENCKE, LITH. N.Y.

PLATE XVI.

COUNTRY HOUSE OF D. SCULL, Esq., HESTONVILLE, PA.

DESIGNED AND LAID OUT BY EUGENE A. BAUMANN.

The buildings of this place are located on a plateau, as indicated on the map. The main entrance to the place is at the base of the slope, for the purpose of avoiding the very steep ascent of the public road, just above the main gate.

The farm buildings, vegetable garden, the hot-beds at *C*, a small green-house at *B*, and an ornamental grape arbor at *A*, having a small flower-garden, *D*, in its front, are all located on the same side of the house, and can be reached from the kitchen wing without entering upon the lawn or pleasure-ground. A rear approach enters at the northern corner of the place and leads to the farm buildings, as well as to the kitchen yard; this gives access to the rear of the building, without interfering with the private road.

It will be noticed that in this arrangement the smallest possible extent of land is occupied by the various buildings, and for purposes which do not belong to a pleasure-ground, leaving as much as possible for ornamentation, and the room required for the planting out of the public road, without shortening the extent of the lawn on the north or west side.

The groups or masses are, as a general rule, formed of those sorts of trees and shrubs which are easily to be procured, whilst specimens which stand singly are of choicer varieties. These may be introduced to a greater or less number, but always in such a way as to leave each one all the room necessary for its full development.

1, Pyrus Japonica, Purple Beech, Magnolia tripetala, Kilmarnock Willow, Prunus sinensis fl. pl., the Purple Barberry, etc.

2, around the large rock, Austrian Pines, Scotch Pine, and some Pinus Mugho, mixed with the American Trailing Juniper.

2′, Spiræa Reevesiana fl. pl.

2″ and 2‴ are some Weeping Willows, American Linden, Double Flowering White and Red Hawthorns, and Weigela rosea planted singly.

3, on the right of the entrance, Sycamore and Norway Maples.

4, California Privet, Syringa, and Deutzia scabra.

5, Evergreens, a group of which form the body on the road; but on the projection at 5 there are shrubs of the same selection as in 4, forming with the group a single mass.

6 and 7, Norway Spruces, European Silver Firs, Siberian Arbor Vitæ, and Junipers.

The planting at 8, 9, and 10, is intended to completely hide the rear approach from the play-ground.

Norway Spruces and Scotch Pines are quite densely planted at 8 and 8, which, with Arbor Vitæ in front, form the mass.

The mass at 9 and 10 is more open and irregular, and consists of small groups of three or four White Pines, two or three Norway Spruces, Junipers, Yews, etc.

Of the plants best suited for show planting, a selection is made among the following sorts: The Globe Acacia (*Robinia Bessoniana*,) the Weeping Ash, Purple and Cut-leaved Beeches, the Purple-leaved Filbert, Silver-variegated Ash-leaved Maple, Purple-leaved Sycamore, Double-flowering Horse-chestnut, (red and white), Judas Tree, (the European and the Japanese), Magnolia conspicua and Soulangiana, English and Turkey Oaks, Double-flowering Peach in var., the Salisburia or Gingko, Kilmarnock Willow, and the Exmouth Elm.

Of evergreens the selection is made among Thuja globosa, Thuja aurea, Sibirica, and Hoveyana, and the Tom Thumb Arbor Vitæ, Juniperus Hibernica, Juniperus squamata, Juniperus procumbens, Juniperus Suecica, Juniperus communis prostrata, Pinus Cembra, excelsa, Lambertiana, and pumilio, Abies Nordmanniana, Douglasii, nobilis, etc. Finally, Cupressus Lawsoniana, Thuyopsis dolobrata, some Podocarpus, etc., etc.

PLATE XVII.

WASHINGTON PARK, BROOKLYN, N. Y.

DESIGNED AND EXECUTED BY OLMSTED & VAUX.

Messrs. Olmsted, Vaux & Co., Landscape Architects and Superintendents of the Prospect Park of Brooklyn, N. Y., instructed by the Board of Park Commissioners to prepare a design for the laying out of the Public Square known as Fort Greene, or Washington Park, had the kindness to add this map to our collection of executed grounds.

As a masterpiece of landscape architecture it is well worthy to stand in the line with the famous Central Park of New York City, and the Prospect Park of Brooklyn, now in progress of execution. Full of dignity and impressiveness, it will, like all their works, inspire the national taste for landscape architecture and landscape gardening.

An abstract of the report accompanied by the design enables the reader to follow the artists' idea of a public park. The ground to be improved—over thirty acres in extent—is in the heart of the city, and is mainly elevated above the adjoining land. The rise, in parts, is so considerable that the surrounding buildings are overlooked and command interesting views, extending far up the East River and down to the lower Bay.

We also find that even in the hottest weather of summer, and when the air in the adjoining streets is disagreeably close, a refreshing sea-breeze can often be enjoyed on the higher level of Fort Greene.

Owing to the advantages it thus offers, of fine prospects and pure air, combined with extended and varied character of surface, the ground allows of more complete arrangement for popular recreation than can often be attempted in the public squares of large towns; and yet it is altogether too restricted to be properly laid out as a park. The general treatment which will be likely to give those who frequent the grounds during the day the greatest enjoyment must be of a somewhat rural character; but it is undesirable, with reference to public morals and the general police of the city, that grounds laid out in this way should be left open after dark, or that they should be used for the assemblage of public meetings, the display of fireworks, or for other incidental purposes, which bring together large crowds.

For refreshing purity of air and beauty of prospect, the central part of the square is, beyond question, to be preferred. As a place for public assemblages, the lowest ground, in the angle between Myrtle Avenue and Canton Street, has the advantage of being readily accessible from the more densely populated parts of the city, and offers a sufficiently large area of surface that will require but little alteration to make it available. We accordingly set off in this quarter a space 370 feet in diameter, which will give easy standing room for a mass-meeting of thirty thousand persons.

The whole of this ground will have a regular slope towards the north end, which furnishes a suitable location for the display of fireworks, and is provided in the center with a "rostrum" for public speakers, to which may be attached, if thought desirable, convenient accommodations for the seating of guests of the city, for bands of music, or for committees.

The whole square may be brilliantly lighted. There will be no fence or barrier of any kind between it and the streets on either side, and when occupied by public meetings, thousands of persons may pass in and out without confusion or serious disturbance to the main body. The high ground in the interior of the park, immediately opposite the rostrum, has been the scene of great historical events, and for many years has been used by the citizens of Brooklyn as a place for patriotic demonstrations. The sentiments and purposes which are thus associated with the site should, we think, be respected. We therefore propose to establish in a more fitting manner, at this point, the feature of the "Saluting Ground," and have laid out, in connection with it, a road for artillery, twenty feet in width, which will be entered from the gate nearest the arsenal. With the intention of securing to visitors an agreeable walk in the immediate vicinity of the square when the gates of the enclosure are shut for the night, it is proposed to increase the width of the adjoining sidewalks to thirty feet, and plant them with a double row of trees. Gates are provided at the various angles and in the center of each side.

Special prominence is given to the angular approaches, and they are enlarged and systematically planted with trees, so that they may present a more agreeable effect to visitors entering the park, and also offer facilities for an easy turn in connection with the exterior sidewalks. In the enclosed pleasure-ground, broad walks are in the first place so laid out that the whole place is thoroughly traversed and turned to account. Lines of communication, tolerably direct and of easy grade, are at the same time secured for those who may have occasion to cross the park during the day.

The general surface of the ground is very irregular, but it has been thought desirable to arrange for a nearly level lawn of considerable extent for boys, and for another lawn of about the same dimensions for the use of girls and children.

The undulating ground is intended to be somewhat densely planted, and it is proposed to so lay it out that it will offer a series of shady walks that will have an outlook over open, grassy spaces at intervals.

On the upper plateau a site is arranged for a "vine-covered walk" of considerable extent, which would offer in hot weather a sufficient protection from the rays of the sun, even at noonday.

The ground plan of this shelter is in the form of a cross, one arm of which connects with the saluting ground; another with the building, to be set apart for the sale of refreshments; the third with an "observatory" of moderate elevation, to be erected on the site indicated on the plan; while the fourth commands the most interesting view over the city that can be obtained within the limits of the property.

REFERENCES.—*A*, Covered Arbor; *B*, Refectory; *C*, Saluting Ground; *D*, Observatory; *E*, Rustic Shelter; *F*, Meeting Ground; *G*, Rostrum; *H*, Monument; *J*, Boys Play-ground; *K*, Girls' Play-ground.

CUMBERLAND STREET

OXFORD ST.

PORTLAND AV.

HAMPDEN ST.

CANTON STREET

MYRTLE AVENUE

A

B

C

D

E

F

G

H

I

K

0 30 60 100 200 300 100 feet

10 0 10 20 30 150 250 350

H. BENCKE, LITH. N.Y.

PLATE XVIII.

RETREAT PARK, HARTFORD, CONN.

DESIGNED BY OLMSTED & VAUX, AND EXECUTED BY J. WEIDENMANN.

The annexed map represents the private grounds (an area of thirty-nine acres) of the Retreat for the Insane at Hartford, Conn. Dr. John S. Butler, Superintendent of this institution, gives us an interesting description in his "Report of the Committee on Improvements, etc." He says: "The committee on improvements who were last year appointed to take charge of the liberal donation which had been made for the improvement of the Retreat, and to carry out the plans proposed by those donations, would respectfully report in part:

"In the first place they gave the plans a most thorough and careful scrutiny. They found that the character of these improvements, especially those upon the grounds, where one change often brought the necessity of making another which was not before apparent, made it impossible to adopt anything more than an approximating estimate of the cost or to limit their expenditures here to a fixed amount.

"They resolved therefore to undertake no more than they could carry through thoroughly, believing that what was worth doing was worth doing well and that what they did undertake they should finish; there would thereby be no room or necessity for future changes or reconstruction.

"In their expenditures upon the grounds, for instance, they could have made a large saving by a cheaper construction of the drives and walks, by laying down less drains, or by leaving a section of the grounds untouched. This, however, would have marred the effect of the whole, would have pleased nobody, and would have entirely destroyed the unexpectedly beautiful effect which competent judges agree in deciding has been produced.

"From whatever points of the drives or walks the grounds are viewed, the effect upon the eye now is harmonious and striking.

"Having once commenced, good taste as well as sound economy, they thought, compelled them to carry out the plan to its present extent.

"The committee gave their first attention to the grounds, considering their improvement as the most important of the proposed plans. They found, whilst their general aspect was pleasant, that very little had been done to make them accessible or to improve their appearance; the surface of the greater part was in the same condition as when purchased by the Institution, some of it forty years ago. Much of it was rough, and a broad swale of low land extended through the center of the lot, most of the year wet and always impassable, especially for ladies; it was of little use, except for grass and the distant view.

"Many of the trees were crowded and were interfering with one another, and as most of the planting had originally been made without any systematic plan, some were misplaced and served only to injure others and obstruct the view.

"Adopting without alteration the beautiful plan presented to them by Messrs. Olmsted & Vaux, of New York, they engaged Mr. Weidenmann to superintend its execution. His operations extended from June to November.

"According to an especial map of drainage prepared by Col. Geo. E. Waring, Jr., he underdrained seventeen acres of land. The drives and walks had been adapted to the natural grade of the land and the existing plantation, with such good taste and tact that much less was left for us to do than could reasonably have been expected. The whole amount expended by Mr. Weidenmann was $6,036.00.

"The plan for the Museum was drawn by Mr. Vaux, and we are greatly indebted to the skill of Mr. Vaux for the plan, etc., of this very beautiful room; it is in excellent taste, and admirably adapted to its intended purpose.

"By the unexpected and most gratifying generosity of Mr. P. B. Mead, of New York, (the editor of the Horticulturist,) we were presented with a plan and the working drawings of a conservatory of singular beauty; it is curvilinear in form, and, viewed externally, it would form a most graceful ornament to the lawn.

"The internal arrangement, combining the winter garden and the green-house, would give us ample opportunity for the disposition of the flowers, with plenty of room for easy access, free examination of them all, without injuring or crowding, and at the same time giving our patients sufficient space for cheerful recreation, and all this within reach of a moderate expenditure."

In a report two years after the foregoing, Dr. Butler says:

"But the greatest gain of all has been from the improvements of our grounds, and from these in the summer months we are deriving our greatest help. We had formerly a broad, excellent mowing lot, the principal path through which was a straight, narrow gravel walk; the trees were there, but so misarranged that neither their beauty nor their number could be seen from any one point.

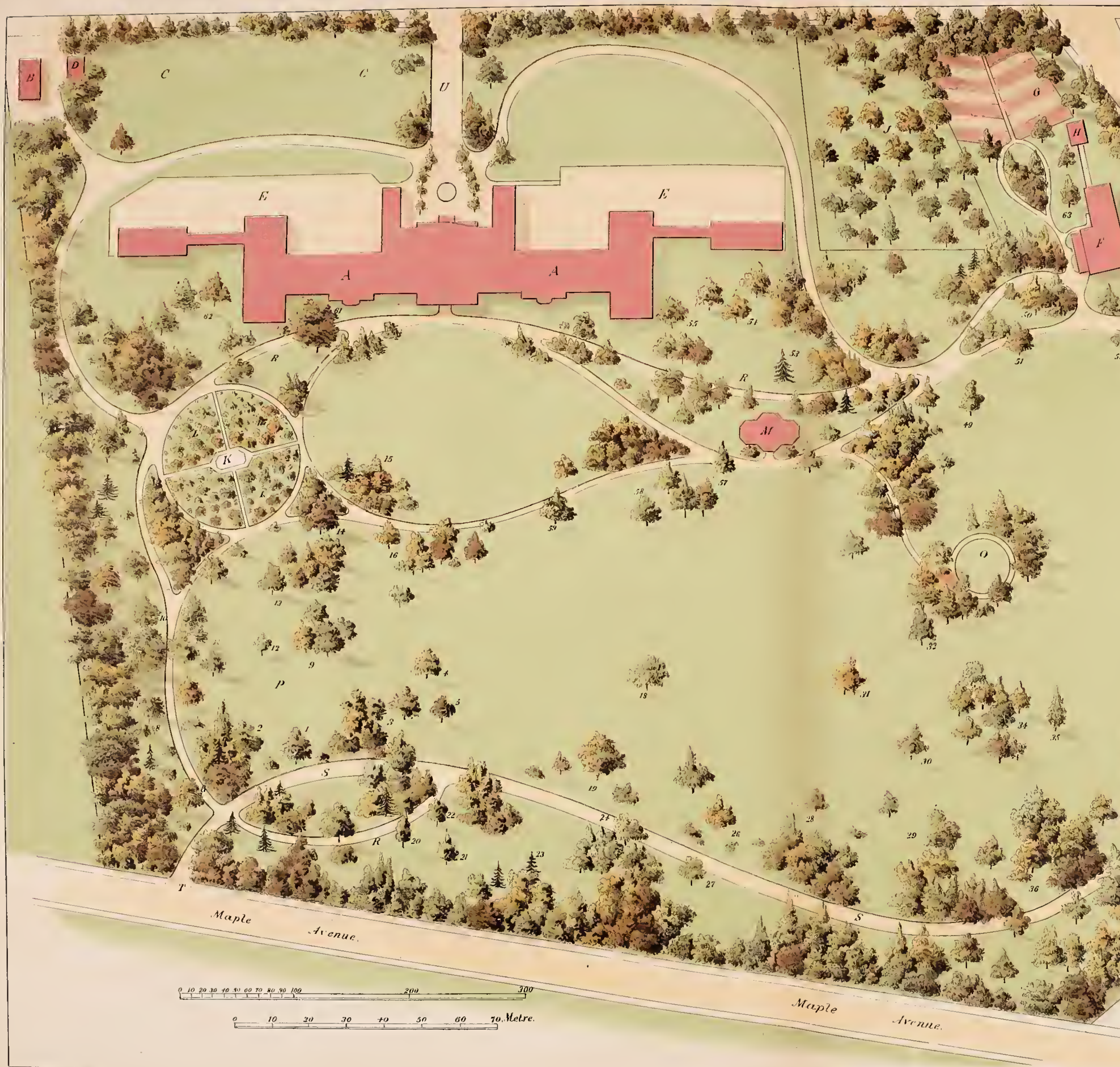
"The practical inutility of all before the change was well illustrated by a young lady, a convalescent patient, who, in answer to my suggestion that she should repeat her walk of yesterday around the grounds, declined, because 'she had been around once and seen them all.'

"As the genius of the sculptor brings out the graceful statue from the shapeless block, so here has the same artistic power produced from the small meadow a combination of beautiful effects, whose existence was unknown, and of which we may well be proud.

"The drive which gives the public an opportunity of observing these pleasant changes without exposing ourselves to interruption or intrusion, is exerting a happy influence abroad, in making it evident that the externals of a lunatic asylum need not be repulsive, and may lead to the reflection that its inner life is not without its cheerful, home-like aspects."

The ground has been open since 1863. Dr. Butler informs us that in all of the five years since that time, in no instance has there been any abuse of the liberty he has thus given to the public of free access to the drive on every summer afternoon.

EXPLANATORY REFERENCES.—*A*, Retreat buildings; *B*, Barn; *C*, Drying yard; *D*, Ice-house; *E*, Patients' yard; *F*, Superintendent's dwelling; *G*, Vegetable garden of superintendent; *H*, Superintendent's barn; *J*, Orchard; *K*, Patients' flower-garden and conservatory; *M*, Museum; *O*, The Green; *P*, Play-ground; *R*, Patients' drives; *S*, Public drive; *T*, Main entrance; *U*, Business entrance.



H. BENCKE, LITH. N.Y.

PLATE XIX.

APPROACH AND DIVISION MAP OF PROPERTY SITUATED NEAR HASTINGS, WESTCHESTER CO., N. Y.

DESIGNED BY OLMSTED & VAUX.

Map XIX gives an interesting illustration of the general division of and access to a tract of two hundred acres of land suitable for country homes.

About one hundred and sixty acres of wood and pasture ground surround the homestead, which lays on an elevated flat forty feet above the adjoining public road.

The ground east of the farm buildings rises again, forming various hills and dales from which charming views of the Hudson and its picturesque banks can be obtained.

These grounds have been of but little value to the owner, and the idea of an appropriate division for building sites was suggested.

Upon a consultation with Messrs. Olmsted and Vaux, the most celebrated landscape architects in this country, a topographical survey of the whole area was made, and the most prominent points for dwellings, with regard to distant views and a suitable formation of the surface for further improvements, staked out for a preliminary guide.

Having thus chosen the location of five or six elegant sites, the important question of an easy and appropriate access to them had to be solved.

The situation of the different lots demanded an access from the north-west, and another from the south; while a third was connected with the old approach-road to the homestead, which lies between the other two.

The lines chosen for these roads were with but a few exceptions directed by the natural grade of the land, so that the average inclination on steep grades was one in nine, while for the remaining and largest portion of the roads a grade of one in sixty-five was obtained. The drives, measuring thirty-five feet in width, were projected for well-constructed gravel roads.

In order to give the whole arrangement a park-like appearance, a border of about seventy-five feet in width on each side of the drive has been sacrificed for ornamental purposes; but the grouping, decorating, and thinning out of the same have been left until the adjoining lots are improved and a harmonious connection can be attained.

The mutual, open lawn on the eastern turn of the drive, and the artificial lake with its natural and picturesque rock-work towards the southern termination, complete the simple and tasteful arrangement.

The valuable hints here given will doubtless be appreciated by the reader, as these principles can be applied upon any scale or to any area.


Pasture
Grounds.
Pasture.
Open Lawn.
Wood Land.
Wood Land.
Pasture Grounds.
Meadow.
Wood Land.
Farm Land.
Wood.
Croton Water Aqueduct.
Home Lot.
Public
Road.
0 50 100 200 300 400 feet
0 10 20 30 40 50 60 70 80 90 Metre
H. BENCKE, LITH. N.Y.

PLATE XX.

SUBURBAN RESIDENCE, CALLED THE CEDARS, AT NEWPORT, R. I., THE PROPERTY OF WM. H. PAINE, Esq.

REMODELED BY MICH. BUTLER.

The Cedars is one of the many fine suburban residences of Newport. Its rather sheltered position has preserved to a great extent the good and well-arranged collection of trees. The severe and often violent sea-breezes prevent a full development of trees almost everywhere in the vicinity of Newport, notwithstanding careful selection and close planting.

The plain but massive dwelling-house *A* is built on a slight elevation of the ground. It commands from its upper stories a fine view of the Atlantic Ocean, and the views from the veranda and its adjoining rooms of an extensive lawn and tastefully grouped borders are rarely surpassed.

Drives and walks are well laid out and constructed, but the oval-shaped grass plot in front of the main entrance is too artificial in its swelling elevation, and not at all in correspondence with the general character of the grounds. The grounds, I am told, were laid out and planted about twenty years ago.

The flower-garden *H*, and the extensive green-house *C*, are located on the west side, in the rear of the mansion. The barn, carriage-house, and sheds *D*, enclosing the barn-yard *F*, are built against the north wall of the green-house. The drying yard *E*, between the avenue and the stable, is densely enclosed by a hedge of American Arbor Vitæ. *B* represents a small conservatory connected with the house; *G*, orchard and vegetable garden; *J*, rustic seat.

The most prominent groups and single specimens are:

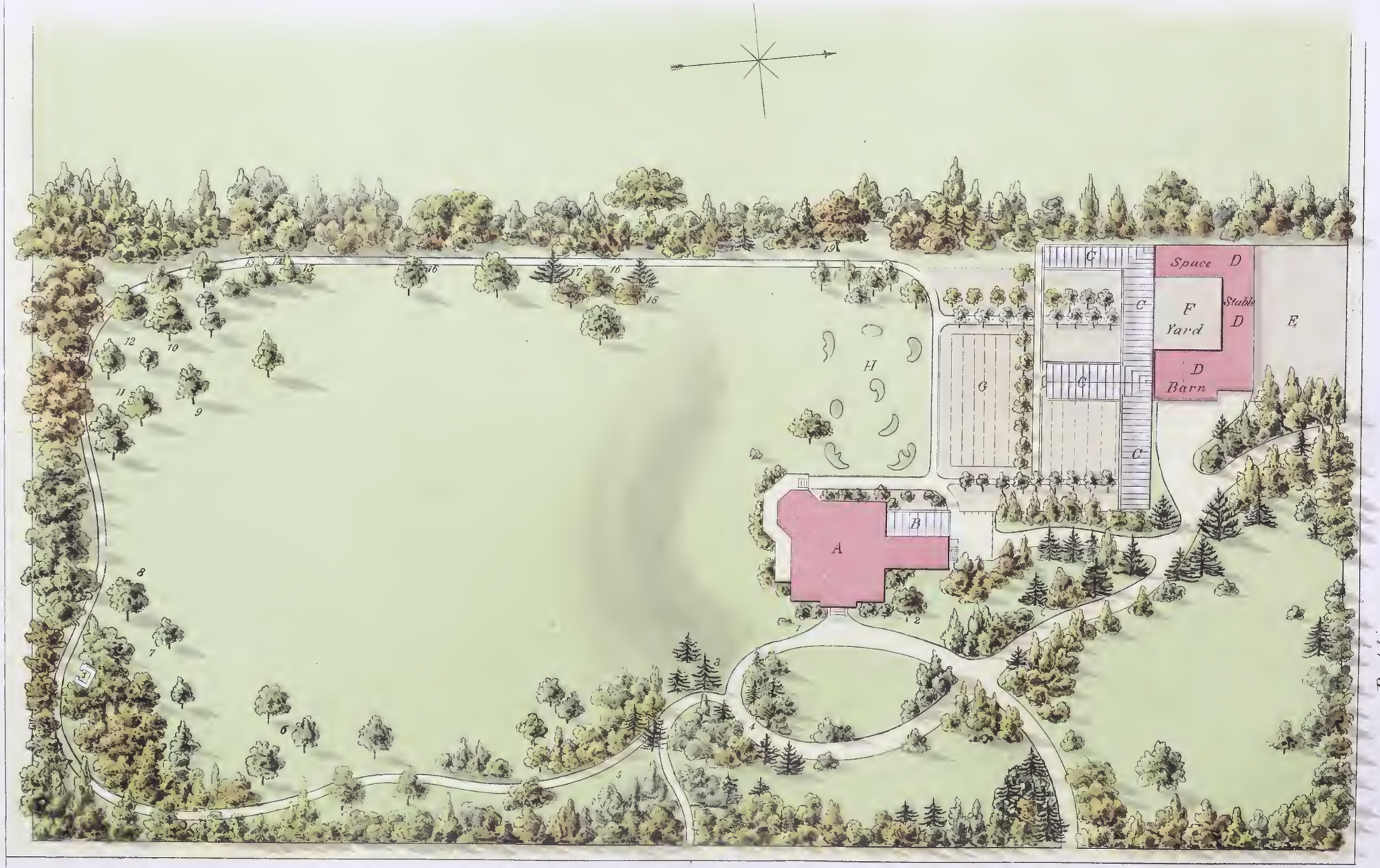
1. At the entrance door, an artificial group of rock-work, decorated with low evergreen plants.
2. Red-flowering Horse-chestnut.
3. European Larch.
4. Group of Arbor Vitæ, Spiræas, Ilex glabra and Ribes, and towards the gate, English Elm.
5. Norway Maple.
6. English Maple, American Ash, Norway Maple.
7. Dense group of Elms, Maples, Ashes, Norway Spruces, and American Arbor Vitæ.
8. Ash-leaved Maple.
9. Scarlet Maple.
10. American Elm.

11 and 12. White Oak.

13. Group of different flowering shrubs.
14. Magnolia tripetala.
15. Arbor Vitæ.
16. Magnolia acuminata.

17 and 18. Thorns.

19. Weeping Willow. This group effectually shuts off the view into the neighbor's yard.



H. BENCKE, LITH. N.Y.

PLATE XXI.

CITY LOT, 150×300 FEET, AT BUFFALO, N. Y.

DESIGNED AND LAID OUT BY ED. O. SCHWAEGERL.

In those cities and towns where real estate is not so valuable as in much larger places, we frequently find building lots for residences of 100 feet front.

Plate XXI represents one of those handsome and comfortable places for which this country has become so remarkable.

The entire depth of the lot allows but a limited front yard, the principal lawns being on the side and rear. The flower-garden, orchard, and vegetable garden, are brought into a tasteful and proper connection with the pleasure-ground, which is kept strictly private, avoiding, therefore, a communication with the entrance.

The drive to the barn lies on the north side of the house, connecting with its main entrance the offices and cellar doors, turning in front of the barn, and having ample standing ground for carriages, etc. The dense planting in the turn is intended to hide the lower part of the barn and shed. The division fence between the neighbor's ground on the right has been removed to a distance of about seventy-five feet from the front line, thus throwing both lawns into one.

EXPLANATION OF THE FIGURES.—*A*, Dwelling; *B*, Barn; *C*, Drying yard; *D*, Barn-yard; *E*, Hen-yard; *F*, Hot-beds; *G*, Flower-beds; *H*, Statue; *J*, Vegetable garden; *K*, Rustic seat.

The following are the most characteristic plants:

1. Magnolia conspicua.
2. Tulip Tree.
3. Magnolia glauca.
4. Cotoneaster microphylla.
5. Weigela rosea, and towards the steps of the veranda a mass-grouping of Rhododendron Catawbiense and Kalmia.
6. Hemlock.
7. Rhodora Canadensis.
8. Deciduous Cypress.
9. Double Flowering Apple.
10. Juniperus occidentalis.
11. Norway Spruce.
12. Ornus latifolia.
13. Hydrangea quercifolia.
14. Prunus Sinensis.
15. Californian Privet.
16. Menzies' Spruce.
17. Stuartia pentagynia.
18. Austrian Pine.
19. Syringa Emodii.
20. Hemlock.
21. Juniperus glauca.
22. Norway Spruce.
23. Stuartia Virginica.
24. Fastigiate Deciduous Cypress.
25. Yellow-wood (Virgilia).
26. Glyptostrobus pendulus.
27. Golden-Chain Laburnum.
28. Austrian Pine.
29. Fringe Tree.
30. Calycanthus.
31. Dwarf Norway Spruce.
32. Group of Cratægus Pyracantha and other Thorns.
33. Horse-chestnut, Norway Maple, and Sassafras.
34. Norway Spruce.
35. Swiss Stone Pine.
36. English Oak.
37. Austrian Pine.
38. Cornelian Cherry.
39. Glyptostrobus.
40. Norway Maple.

H. BENCKE, LITH. N.Y.

PLATE XXII.

THE RESIDENCE OF MORRIS K. JESUP, Esq., SITUATED ON THE HUDSON RIVER, NEAR IRVINGTON, N. Y.

DESIGNED AND EXECUTED BY IGNATZ A. PILAT.

The grounds, although not extensive, consisting of but five acres, are much diversified. West of the house a gently undulating slope towards the river forms the principal lawn, which corresponds with the majestic river, and gives quietness and repose to the landscape; to the north and north-east a finely wooded, picturesque ravine, enlivened by a considerable brook of clear water, dashing over rocks and boulders, adds much to the effect of the scenery.

The arrangement of the place, as shown in the plan, is very simple. In connection with the green-house is a small kitchen garden, where only fine vegetables are raised, while for the coarser ones a place on the westerly boundary is provided.

The flower-beds north of the house are protected from the north and north-east by natural woods; these, seen from the veranda or the sitting-room of the house, present a very pleasing feature, which is hightened by a little fountain in the center.

From the summer-house near the main entrance a grand view is to be had towards the so-called Tappan Sea.

A small orchard at the south-west is protected by a hedge of Honey Locusts, while towards the lawn a grape arbor shades the path, from which a lovely view over the smooth, grassy surface, interspersed with stately shade trees, placed with apparent carelessness, is obtained.

The boundary planting, along the east and south-west, consists of various evergreens, such as Norway, Balsam, and White Spruce; Scotch, White, and Austrian Pines, intermixed with White and Black Birches, Maples, Ashes, etc.; besides a great variety of flowering shrubs, such as Spiræas, Syringas, Deutzias, Weigelas, Cytisus, Lonicera, Running Roses, etc., producing a rich tangled mass of flowers and foliage during the whole season.

The growth in the densely wooded ravine consists mostly of specimen trees of Chestnuts, Oaks of different species, Beeches, Black Birches, Soft Maples, Alder, etc., besides some Hemlocks and Arbor Vitæs. By introducing among those on the outskirts a great variety of tender evergreen shrubs, such as Rhododendrons, Kalmias, Ilex, Taxus, Mahonia, Hedera, Vinca, etc., the effect produced is highly pleasing.

References.—*A*, Dwelling; *B*, Barn and stable; *C*, Green-house and hot-beds; *D*, Garden for cultivation of fine vegetables; *E*, Flower-garden; *F*, Summer-house; *G*, Grape-vine arbor; *H*, Orchard; *J*, Vegetable garden; *K*, Well; *L*, Drying yard; *M*, Rustic seat.

The most characteristic trees are:

1. Norway Spruce.
2. White Spruce.
3. European Silver Fir.
4. Bhotan Pine.
5. Swiss Stone Pine.
6. Austrian Pine.
7. Japanese Spruce (Cryptoméria).
8. Lawson's Cypress.
9. Golden Arbor Vitæ.
10. Royal Oak.
11. Norway Maple.
12. Judas-tree.
13. Small-flowered Horse Chestnut.
14. Tulip-tree.
15. Purple Beech.
16. Kentucky Coffee Tree.
17. European Mountain Ash.
18. American Mountain Ash.
19. Flowering or Manna Ash.
20. Purple-leaved Elm.
21. Spanish Chestnut.
22. Black Birch.
23. Eastern Plane-tree.
24. American Cypress.
25. Turkey Oak.
26. Willow Oak.
27. Double flowering Chinese Crab.
28. Ash-leaved Maple.
29. Yellow Wood (Virgilia).
30. Red-flowered Horse Chestnut.
31. Clammy Locust.
32. White Fringe-tree.
33. American Elm.
34. European Larch.
35. Maiden Hair-tree, or Ginkgo.
36. Catalpa.
37. Sycamore Maple.
38. Koelreuteria paniculata.
39. Yulan or Conspicuous Magnolia.
40. American White Ash.

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PLATE XXIII.

THE FLOWER GARDEN AT MOUNT ST. VINCENT, CENTRAL PARK, NEW YORK.

DESIGNED AND EXECUTED BY IGNATZ A. PILAT.

As an illustration to our hints on flower-gardens, we could not find anything more tasteful or more appropriate for instruction than this garden of one acre. The artist, Mr. Ignatz A. Pilat, employed by the Park Commissioners in forming the beds, availed himself of the shapes of leaves, and has arranged them on the turf in a most effective manner. The effectiveness is not alone due to the composition of those beds so brilliantly painted with flowers, but also to the masterly arrangement of the surrounding groups, the display of gigantic leaf-plants, and the dark foliage of evergreen trees, which produce a powerful impression upon the visitor who looks down upon it from the terraces of the museum.

Each bed of the central or portion of the flower-garden, marked by figure 1, is planted with one kind of flowers only. Early in spring, collections of Hyacinths, Tulips, Crocuses, Scillas, Muscari, etc., with the different colors tastefully arranged, produce a most charming result. A succession of other herbaceous plants is continued throughout the season, consisting of the best but more dwarfish varieties of Verbena, Petunia, Geranium, Phlox, Lobelia, Sanvitalia, Nemophila, Heliotrope, Gomphrena, Asters, etc.

Figure 2 denotes groups of Remontant, Tea, and Noisette Roses.

Figure 3, a group of leaf-plants, viz.: Calocasia or Caladium, Canna, Ricinus, Arundo, Bambusa, Gynerium, Humea, Coleus, etc.

The selection for figure 4 consists of Rhododendron, Kalmia, Azalea, Rhodora, and scattered evergreens, such as Abies orientalis, Biota aurea, Taxus aurea, Taxus erecta, Juniperus pendula, etc.

Figure 5 contains a great variety of perennial plants, such as Althæa, Lychnis, Rudbeckia, Digitalis, Campanula, Aquilegia, Asclepias, Baptisia, Lupinus, Delphinium, Chrysanthemum, etc.

Figure 6 denotes rare specimens of trees, viz.: Robinia umbraculifera, Magnolia grandiflora, Fagus purpurea, pendula, and laciniata; Cladrastis, etc.

Figure 7, Yucca, Bonapartea, or Cordyline.

Figure 8, scattered specimens of flowering plants, or those with ornamental foliage, such as Tritoma, Acanthus, Salvia, Erythrina, and Wigandia.

Figure 9 represents dense planting of evergreen and deciduous shrubs, besides a large variety of flowering shrubs, forming the background of the flower-garden, and serves at the same time as a protection of the more tender plants.

PLATE XXIII.

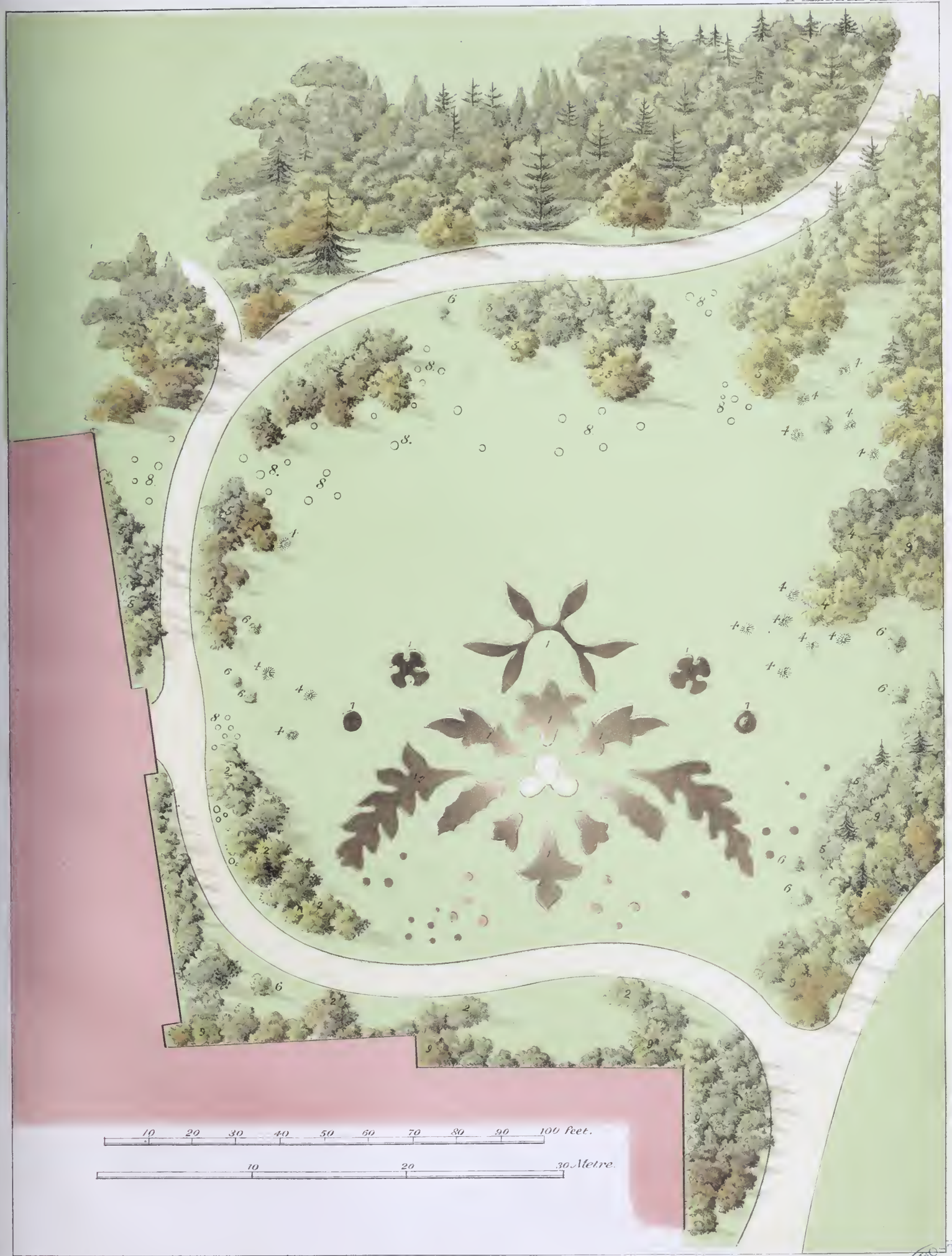

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PLATE XXIV.

MAP OF SECTION XV. OF CEDAR HILL CEMETERY, AT HARTFORD, CONN.

DESIGNED AND EXECUTED BY F. WEIDENMANN.

To illustrate the principles of a rural cemetery, the topographical map of a single section of the one at Hartford, Conn., will answer the purpose. The whole grounds comprise two hundred and fifty-eight acres; the section here shown includes only ten acres.

This country, far advanced beyond any other nation in the proper conception of rural cemeteries, has shown remarkably good taste and sound judgment in ornamenting and beautifying them. The idea that a cemetery must have a gloomy and dismal appearance is banished, and the present refined taste is to make a rural cemetery the most classical as well as the most attractive spot in our midst. Spring Grove Cemetery, near Cincinnati, under the able management of Adolph Strauch, has become a model work of this kind. Mr. S., after hard struggles with the old system, succeeded in adopting the "lawn plan," which rejects all enclosures for family lots as needlessly expensive, and as destructive of harmonious and poetical assemblage.

The planting and grouping in the section grounds is of the greatest importance, and fear has been expressed that our most prominent cemeteries are in danger of suffering serious injury from a universal tree planting by the lot owner, each one of whom, regardless of the general effect, thinks he must line his small plot with trees.

In adopting the "lawn plan" for Cedar Hill Cemetery, the writer has introduced some new features, bearing in mind that the lots, although distinct and separate in their arrangements, must, when improved, stand in harmony with each other, while the section on which they are laid out should represent an attractive and picturesque whole.

The entire planting, therefore, is in charge of the Superintendent, who, after laying out the enclosing drives, or avenues, of the respective sections, according to the general map of the ground, first takes into consideration the general character, the disposition, and location, of the principal groups of large forest trees to be planted on each one.

It is impracticable to plant first-class forest trees on family lots of ordinary size; the decoration of these should consist of evergreen trees and flowering shrubs only. Ground must therefore be selected for a few necessary groups of deciduous trees, such as Oaks, Elms, Maples, etc., and these should be so distributed over the section, that after the whole is improved and planted, the general appearance will be satisfactory to the eye. As we have thus provided for shade and contrast, we also must provide for proportionate light and opening, to produce picturesque effect.

Instead of having each lot ornamented within its own boundary, we lay out little lawns or recesses in such a way that every lot adjoining each one has the benefit of it; by this arrangement the entire section presents a very pleasing appearance. While we consider a little ornamental ground necessary for proper accommodation of a family monument, we propose by this plan to secure a small area of ornamental ground by forming a lawn common to all the adjoining lots, the expense of which will be assessed upon them; in other words, we increase the price of such lots in proportion to the ground sacrificed.

The lawns or recesses are, like the lots, under the control of the Cemetery Association, and guaranteed in the deed to be kept as such forever.

Marble posts for landmarks of lots are objectionable, on account of their large number and sameness on the section; a neat cast-iron plate, 10×10 inches, in each corner, bearing the number of the lot and section, and, if desirable, the initials of the owner, is by far the cheapest and most appropriate landmark. The plate is laid down level with the green turf, and secured to the ground by side flanges, so as to make it rather difficult to remove it without the aid of spade or pick. For greater security, where landmarks and boundary lines are so numerous, a record is made of the exact location of each grave and monument, the area and distance of ornamental grounds and lots, and the principal trees and shrubs planted in each section, so that at any time the above items can be ascertained and examined by the lot owner at the office of the corporation. To effect this, I introduced the "lot book;" every section is to have its own book and duplicate, which are placed for safe keeping in the bank vault of the treasurer's office. Each lot occupies a separate sheet, which is divided into squares, representing square feet, on which an accurate survey of the lot is drawn, indicating the size of the respective lots and all distances to the neighboring lots or the road line.

It is the duty of the superintendent of interments to record daily on a duplicate lot book the location of interments, names, number of graves, the location of monuments or other improvements, from which it will be copied every month into the books at the office.

In regard to the improvements of family lots, I refer the reader to "Hints on Burial Lots," page 39.

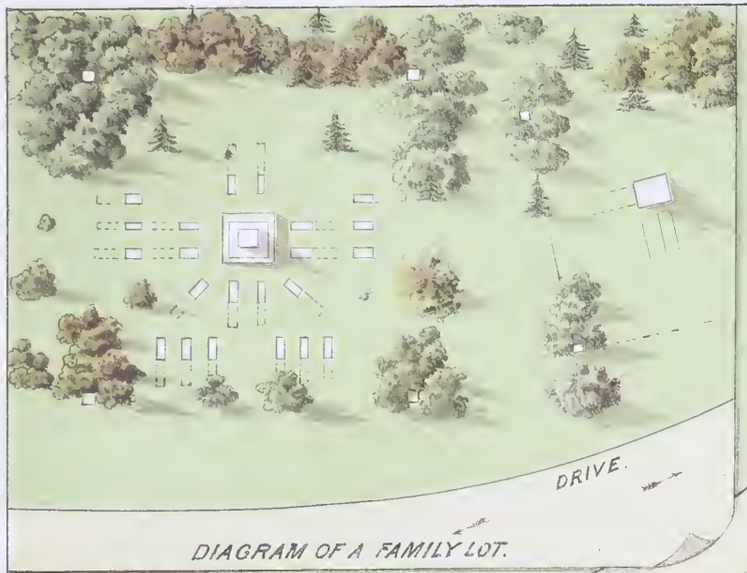

DIAGRAM OF A FAMILY LOT.

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